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ACUTE LESIONS OF THE UPPER ABDOMEN*

BY

NORMAN C. LAKE, M.D., M.S., D.Sc., F.R.C.S.

SENIOR SURGEON, CHARING CROSS HOSPITAL

From the practitioner's point of view the most interesting and important aspect of this subject is that of diagnosis. We shall therefore concern ourselves almost exclusively with this side of the subject, while, for reasons of time, limiting our consideration to non-traumatic lesions.

It is always useful, when a problem of diagnosis arises in any localized area, to run over in one's mind the various normal anatomical structures present within the region, otherwise important possibilities may be easily overlooked. In the present case, for example, this method of approach will ensure that we do not forget the sympathetic ganglia, the suprarenals, and the large blood vessels. Next we consider the probable and possible lesions of the various organs which can give rise to the type of symptomatology presented by our patient. Here there is no reason to scorn the use of a list which may prevent the oversight of some of the less common conditions. A list having any pretentions at completeness would be a formidable one, and my purpose will be better served if I include only those lesions which in my experience have caused difficulty. It is probably fairly representative of the cases met with by the general surgeon, and may be taken as a guide to most of the conditions in which the question of an acute upper abdominal lesion will arise. They are grouped together under the various organs, but the list gives no indication of the relative frequency of the lesions.

1. *True Acute Lesions of the Upper Abdomen.*

Perforation of gastric ulcers, either simple or malignant.
Leakage from a gastric ulcer.
Acute gastritis.
Acute dilatation of the stomach.
Acute volvulus of the stomach.
Perforation of duodenal ulcers.
Acute duodenal ileus.
Perforation of anastomotic ulcers.
Acute cholecystitis and perforation of the gall-bladder.
Biliary colic.
Abscess of the liver, and infection of echinococcal cysts.
Acute pancreatitis.
Haemorrhage into pancreatic cyst.
Splenic infarct.
Spontaneous rupture of the spleen.
Strangulation of a paraduodenal hernia.
Obstruction of diaphragmatic hernia.
Dissecting aneurysm of the aorta or coeliac axis.
Retroperitoneal haemorrhage and infections, especially in the vicinity of the sympathetic ganglia.

2. *Conditions Arising Lower in the Abdomen, but Sometimes Resembling Upper Abdominal Lesions.*

Appendicitis with general peritonitis.
Ruptured ectopic gestation.
Primary peritonitis, usually pneumococcal.
Perforation of the colon, stercoral or malignant.
Mesenteric thrombosis.
Intestinal obstruction of the upper jejunum.

3. *Other Conditions Simulating Abdominal Lesions.*

Pneumothorax.
Pleurisy and basal pneumonia.
Angina, either a true abdominal type or by reference from angina pectoris.
Tabes, spinal tumours, and tuberculous spine in infants.
Hypoglycaemia and hyperglycaemia.
Uraemia.

Some of these lesions are, of course, so uncommon and so rarely diagnosed preoperatively that we feel no disgrace and no reflection upon diagnostic acumen if they are misdiagnosed; nevertheless, to have considered the possibility appears to be some mitigation for most of us.

Diagnostic Principles

In reaching a diagnosis, especially of acute abdominal lesions, there are two distinct methods of approach which we all apply with varying success. In the first place we usually try to arrive at a conclusion on a purely anatomical and physiological basis, and then we modify and amplify this according to our experiential knowledge and what, for want of a clear understanding of its mechanism, we call instinct. No one would be so foolish as to deny the value of experiential knowledge, and few are willing to place themselves in the hands of an inexperienced person, no matter what his academic attainment may be; yet it is the constant aim of the whole of medicine to make the subject more scientific and therefore controlled by definite laws which can be learned and applied by the novice. In the teaching of students one has this continually in mind, for it is expected of the newly qualified doctor that he shall be a competent practitioner, despite the fact that his experience must of necessity be rather scanty.

If medicine were a pure science, and diagnosis depended upon the exhibition of unalterable laws, it should be possible to teach it upon an entirely theoretical basis. We are all of us aware, however, that the practice of medicine still remains as much an art as a science. I thought that it might be interesting in considering this question of abdominal diagnosis to have the scientific aspect constantly in view, and to see how far it might be divorced from experiential knowledge.

Pain is the outstanding feature of most of the cases with which we have to deal, and so, as a preliminary, some attention must be paid to the significance of the nervous distribution to the upper abdomen. The parietal peritoneum is supplied from the somatic thoracic nerves 6, 7, 8, and 9. This supply extends posteriorly as far as the roots of the mesenteric reflections. The peritoneum of the under aspect of the dome of the diaphragm and certain other areas in the immediate vicinity is supplied by the phrenic trunk from the somatic cervical nerves 3, 4, and 5. The deep visceral supply is derived via the splanchnic nerves and the large sympathetic ganglia from the thoracic segments 5, 6, 7, 8, 9, and 10. Finally, the vagus supplies the intestine with its *accelerator* (a much

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more accurate description than *motor*) fibres, and also provides special sensory fibres to the stomach mucosa.

Pain of the somatic type will arise from impulses affecting the anterior abdominal wall or the diaphragm ; it is well defined and localized, and is usually associated with muscular rigidity and some hyperaesthesia. The patient has little difficulty in describing this quality of pain, for it is one with which we are all more or less familiar, or have comparable experiences, so that there are adequate terms in the language to express its character, such as burning and cutting. Splanchnic pains arise from any condition giving rise to increased tension in the muscular walls of the viscera—that is, over-distension or excessive muscular contraction. They are usually of a vague type even when severe, poorly localized, and badly defined ; there is no overlying rigidity, and little or no hyperaesthesia. The patient has great difficulty in describing their character, and, for want of adequate terms in the language, he uses analogies to somatic pains and speaks of " burning " or " stabbing " pains. Obviously these are pains concerning which we have no opportunities for experiential comparison, seeing that their origins are hidden, and it is for this reason that we have no special words to describe their character (except the word colic, which is meaningless to the average patient).

Stimulation of the vagus gives rise to the special sensation of nausea. Investigation of patients under spinal anaesthesia gives the impression that no true pain impulses pass via this route.

Perforation of Gastric Ulcer

We are now in a position to take a concrete example of the application of these anatomical and physiological points. One of the commonest causes of acute abdominal pain is the perforation of a gastric or duodenal ulcer. This may be a mere leak through a small aperture which is almost immediately sealed off by omentum, or a large perforation causing a massive invasion of the abdomen. It is only the latter type which constitutes a major abdominal catastrophe. Here, a most important point, as would be expected theoretically, is the extreme suddenness of the onset ; there are few other conditions in which the patient can state to the minute the exact time of the commencement of the pain. The perforation is related to increased intragastric pressure, produced either by exertion or food, so that it rarely occurs at night.

Almost immediately after the onset there may be a little vomiting ; this is of no special significance from the diagnostic point of view, occurring in any condition causing intense pain ; it is probably related to the vomiting associated with faintness. But for this, vomiting is usually absent, and a moment's thought will show that this would be expected. Stimulation of the sensory endings of the vagus leads not only to the sensation of nausea but also to the actual contractions of the stomach which initiate the act. The presence of irritating substances in the stomach, either taken in the food or arising from the small intestines below, as in cases of obstruction, is sufficient to start the reflex.

It must not be overlooked, however, that, even if the reflex arc is intact, vomiting cannot occur if the motor nerve endings are out of action, as they are in cases of peritoneal irritation. Added to this, the rigidity of the muscles of the abdominal wall limits their use as accessory means of emesis. We are all familiar with the absolute stillness of the intestine in peritonitis, which indicates a complete inhibition of the motor mechanism. For this reason, even although the sensory nerve endings of the vagus may be stimulated, and the patient experience nausea, the reflex will not be effective. When the stomach becomes filled with intestinal contents these will merely overflow up the oesophagus without any force, and give the very typical regurgitant vomiting (although here the word vomiting is really a misnomer) of peritonitis. In cases of intestinal obstruction, on the other hand, there is no such inhibition of the motor mechanism, at least until the late stages, and so forcible vomiting occurs, helped by the musculature of the abdominal wall.

In a case of perforation in the early stages the motor mechanism is inhibited from peritoneal irritation, but there is also nothing in the stomach to stimulate the sensory endings of the vagus, even if the motor mechanism were not affected. Thus no vomiting occurs except in the later stages, when a peritonitis has supervened, and it is then of the regurgitant type.

The sudden pain is somatic in origin, due to irritation of the parietal peritoneum ; this is an exceedingly sensitive membrane, hence the intensity of the pain. Later there is added to this a muscular pain due to the extreme contraction, which produces rigidity ; this is described by the patient as a cramping pain. As with all somatic sensations, the peritoneal pain is very accurately localized in the early stages, a point of great practical importance. As extension of the exudation occurs the pain due to peritoneal irritation follows its advancing margin and tends to disappear from those regions already invaded ; thus it may be found in the pelvic region, and may be mistaken for an appendicitis or a ruptured ectopic gestation if the patient is not seen in the initial stages.

This shift in the localization of the peritoneal pain is, however, largely obscured by the intensity of the muscular pain, which, of course, remains distributed over the wider area, where the muscles are rigid. A particularly useful diagnostic sign arises from the fact that the phrenic is a somatic nerve, so that, according to the general rule, pain arising from irritation of its deep branches will be referred to its superficial cutaneous distribution—that is, to a small saddle-shaped area over the acromio-clavicular region and the lower part of the neck. This is the " shoulder-tip " pain ; it is almost invariably present in cases of perforation. Often the abdominal pain is so intense that there is a psychical repression of the lesser shoulder-tip pain, but that it is actually present is easily demonstrated by the administration of a spinal anaesthetic. As the anaesthetic cuts off the pain impulses travelling via the splanchnic and thoracic nerves, the shoulder-tip pain engages the patient's consciousness and he now complains bitterly of it. Of course, any source of irritation of the deep phrenic branches will produce this reference, so that its presence is not diagnostic of perforation, unless the abdominal signs agree.

Since any movement on the part of the patient will produce contraction of the already painfully cramped muscles, and pressure on the sensitive peritoneum, it is characteristic of these patients that they lie absolutely still, without movement other than that necessary for respiration. This contrasts strongly with the restlessness of the patient with colic or an intraperitoneal haemorrhage.

When the case is first seen the pulse is commonly slow ; it is not easy to provide the student with an adequate explanation of this. There is, of course, as yet no toxaemia sufficient to raise the pulse centrally, but the effect in many cases seems to be more than a mere absence of acceleration, and, in the absence of any vagus stimulation, may be attributed to a sympathetic inhibition such as occurs in many cases of severe pain. For the same reason the blood pressure falls, although the compensatory mechanisms are so efficient that it is not usually very low when the patient is first seen. The intensity of both these effects varies a good deal, and is

perhaps dependent upon the patient's general make-up—that is, vagotonic or sympatheticotonic. Obliteration of the liver dullness and the presence of free fluid in the peritoneum are found a little later, and are signs due to such obvious physical conditions as to need no elaboration.

Enough has been said to show that most of the symptoms and signs of perforation can be explained upon an entirely theoretical basis without any appeal to experiential knowledge. It is particularly in the differential diagnosis that we shall need the help of the latter.

Acute Pancreatitis

A condition very likely to be mistaken for a perforation is acute pancreatitis. I would emphasize that there are many types of pancreatitis, and that only the fulminating variety gives the picture described in the textbooks which resembles a perforation. The onset, although rapid, is not quite so sudden as that of a perforation, but, as in that condition, it often occurs immediately after a meal. On the whole the patient is more obese, and any previous history of indigestion is less distinct and clear-cut. The initial pain is even more severe than that of a perforation ; in the latter case there is some degree of pallor, but there is a cyanosis added to this in the case of pancreatitis which makes the colour a peculiar ashen grey.

The patient is rather more restless than in the case of ulcer, and there is frequently some dyspnoea. The abdominal rigidity, however, is less intense, and for this reason tenderness is easier to elicit. The local signs, indeed, stand midway between those of a perforation and an acute cholecystitis, and one frequently hesitates between these two diagnoses without thinking of pancreatitis. Exudation behind the lesser sac irritates the left phrenic nerve, and there is well-marked shoulder-tip pain on this side in many cases. In contrast with the rather good pulse in the initial stages of a perforation, the pulse in pancreatitis is very poor and the degree of shock is very profound. This is probably due to the setting free of histamine-like bodies, but the proximity of the semilunar ganglia and the adrenals makes a deficiency of adrenergic effect a possible additional factor. At a later stage there may be some discoloration in the left loin ; even in the early stages there may be tenderness in this loin such as is rarely found in a perforation.

Acute Cholecystitis

Acute cholecystitis also enters into this differential diagnosis. The gall-bladder is developed as a mid-line structure, and its splanchnic innervation reflects this origin, so that pains due to muscular tension (biliary colic) are referred right across the epigastrium, and are not of necessity limited to the right side. We have already mentioned how badly localized are splanchnic pains, but once the patient's somatic localizing sensibility has been aroused by the doctor's (or the patient's) elicitation of tenderness over the gall-bladder, there is a great tendency to " fix " the splanchnic pain to this spot. This secondary localization of splanchnic pains under the guidance of somatic tenderness is a phenomenon very frequently met with in all types of abdominal case.

When the gall-bladder is inflamed the surrounding peritoneum is irritated and a true somatic pain results. The reference in this case is over the tip of the ninth costal cartilage, but the region of the foramen of Winslow receives some fibres from the right phrenic nerve, and this gives a reference to the tip of the right shoulder. This is to be carefully distinguished from the so-called shoulder pain of biliary colic. Here the reference is to the lower part of the scapula, and the impulses travel via the splanchnic nerves. In gall-bladder lesions there may thus be both a shoulder-blade and a shoulder-tip pain. The latter contrasts with the left shoulder-tip pain in pancreatic disease and in most cases of perforation.

As would be expected, there is a rise of temperature in cholecystitis, whereas in the other conditions the temperature is initially subnormal. The pulse, although raised, is not up in proportion to the temperature ; the history of a rigor is very much in favour of a cholecystitis. While not definitely jaundiced, the patient often has a slight icteric tinge ; rigidity and tenderness are much more localized than in a perforation.

Biliary colic is less likely to cause difficulty in diagnosis. It is to be noted, however, that the patient is inclined to sit up ; he complains of difficulty in breathing, and feels as if his chest were held in a vice—all symptoms of angina, with which this condition may be muddled. There is no true abdominal rigidity, and only very localized tenderness. Since there is much vagal stimulation, and no interference with the motor mechanism of the stomach, vomiting is frequent and violent, but gives little relief. The pain shoots through to the shoulder-blade but not to the shoulder-tip. In some cases inflammation is present at the same time or supervenes ; then the picture of a cholecystitis is added and the diagnosis becomes much more obscure.

To return to the question of acute pancreatitis, there are some who do not think the differentiation from the other lesions is of great importance, since, they argue, in any event the patient should be submitted to operation. There is, however, an increasing school which believes that expectant treatment is correct in acute pancreatitis, so that it clearly becomes necessary to attempt the differentiation. Naturally, in such difficult cases mistakes most frequently arise, and it is still true that the great majority of cases of acute pancreatitis are operated upon under a mistaken diagnosis.

In my experience an estimation of the urinary diastase has proved a very useful guide. Since a few hours are required to complete the test it is obviously of no value in the most acute cases, where the supposed perforation must be dealt with immediately. For the large group where one hesitates over the diagnosis, and for those other cases seen early, where it is decided to wait an hour or two for recovery from initial shock, the test becomes possible. The index rises from a normal of 7 or 8 units to prodigious numbers in the region of 400 to 500. Any rise above 50 can be taken as indicating a serious disturbance of the pancreas, and in the presence of acute abdominal signs indicates a pancreatitis. I have on five occasions accurately established the diagnosis in this way.

It is impossible in a short lecture to discuss the diagnosis of all the conditions given in the list, but the individual signs and symptoms occurring in some of the commoner diseases have been dealt with in detail. Many of the points mentioned can obviously be applied to the diagnosis of the other lesions.

Differential Diagnosis

A word may be added concerning the differential diagnosis between abdominal and chest conditions. The most likely thoracic lesion to be mistaken for an acute abdominal condition is a spontaneous pneumothorax. Here the onset is very sudden, and is frequently related to an attack of coughing ; if this occurs immediately after a meal, perhaps as a result of smoking, the picture may be very misleading. The chest feels as if held in a vice, and there is for the time great difficulty in breathing, two signs which may be present in both biliary colic and angina. The onset of colic is never quite so sudden, nor is it related to coughing. Even when the initial severe dyspnoea of a pneumothorax has subsided the respiration rate continues to be raised, and there is a mild cyanosis not unlike that seen in pancreatitis.

Rigidity occurs, but is not so intense as that of a perforation ; it is limited to the upper abdomen, and may be much more marked on one side than on the other. There is, of course, no loss of liver dullness nor evidence of free fluid, and no previous history of indigestion. The slight bulging of one side of the chest and its limited respiratory excursion are suggestive signs, and the diagnosis is established as soon as a stethoscope is applied to the chest. This will be completely confirmed by radiography.

In pneumonia and pleurisy the onset is much less sudden, so that they are not usually mistaken for a perforation. As we all know, the differential diagnosis in these conditions is more difficult in the case of children than in adults, owing to the greater frequency of abdominal reflex rigidity and tenderness in the former. I find in practice that the distinction is usually made instinctively rather than on the basis of physical signs, for these are notoriously misleading in these cases. A really high temperature, some increase in the respiration rate and disturbance of the pulse–respiration ratio, a flushed face with bright eyes, a hot skin, and respiratory expansion of the nostrils combine to paint a picture which makes one hesitate to suggest an abdominal origin for the condition. In some cases there is a pneumococcal peritonitis as a complication, when early accurate diagnosis becomes almost impossible. There is no need to call attention to the fact that diminished air entry at the base is of little diagnostic value, for it is frequently found is cases of upper abdominal lesions due to diaphragmatic inactivity. Nor is it to be expected in the early stages of chest conditions, where mistakes are likely to arise, that the characteristic physical signs in the lungs will be well marked.

Conclusion

Despite the rapidly advancing knowledge concerning the mechanism of production of signs and symptoms, diagnosis in the case of upper abdominal lesions remains difficult. That the newer knowledge is of very real value, however, is indicated by the fact that operations of a purely exploratory nature are now much less common than they were in the past. When the average acute abdominal case comes to the operating table a reasonable anticipation of what is likely to be found has already been made.

EPIDEMIC NAUSEA AND VOMITING

BY

REGINALD MILLER, M.D., F.R.C.P.

PHYSICIAN TO ST. MARY'S AND THE PADDINGTON GREEN CHILDREN'S HOSPITALS, LONDON

WITH

MARTIN RAVEN, D.M., M.R.C.P.

PHYSICIAN TO THE RAMSGATE HOSPITAL

In March, 1936, there occurred in an English boarding school an epidemic which presented some novel features, and resembled the widespread epidemics recently reported in Denmark under the title of "epidemic nausea."* Its symptoms consisted either of vomiting of sudden onset or of nausea ; to which was added in a quarter of the cases the sensation of giddiness, sometimes of considerable severity. The illness ran a short afebrile course, all the patients, with one exception, being fully restored to health within forty-eight hours ; yet in spite of its apparent mildness the epidemic attacked within a period of fifteen days no less than one-half of the number of pupils and one-third of the adults in the school. Altogether among 117 residents there were fifty-two cases, this total including four pupils who became ill at their own homes within a week of leaving the school.

It is proposed here to describe this epidemic with special reference to the Danish outbreaks, and to discuss the problem of its possible nature.

English School Epidemic

The epidemic developed in a high-class boarding school for girls in Thanet on March 23rd, 1936, within a week of the end of term.

During the term there had been a certain number of colds but no serious epidemic or other illness, and on March 22nd the health of the school was excellent. On that day there were in residence 117 people: seventy-eight girls between the ages of 7 and 17 years, and thirty-nine adults, including resident mistresses, matrons, and eighteen maids. Visiting the school were some masters and mistresses, but no day girls. On the first day of the epidemic fourteen people (eleven girls and three adults) were affected, of whom three experienced nausea only and eleven suffered from vomiting. Immediate inquiries were made into the question of the food supply for the day, the water supply, and drainage, but nothing of moment could be discovered. The epidemic developed as is shown in the accompanying table:

	Vomiting		Nausea Only		Total
	Girls	Adults	Girls	Adults	
March 23rd ...	10	1	1	2	14
,, 24th ...	5	4	1	—	10
,, 25th ...	6	1	—	—	7
,, 26th ...	3	2	1	1	7
,, 27th ...	3	—	—	—	3
,, ,, ...	1 (h)	—	—	—	1
,, 28th ...	3	1	2	—	6
,, 29th ...	—	—	—	1	1
,, 30th ...	—	—	—	—	0
,, 31st ...	Term ended: school disbanded				
April 1st ...	1 (h)	—	—	—	1
,, 2nd ...	1 (h)	—	—	—	1
,, 6th ...	—	—	1 (h)	—	1
Totals ...	33	9	6	4	52

The table shows that four girls, marked (h), developed the disease after leaving the school. Their inclusion brings the length of the epidemic up to fifteen days, during which period fifty-two of the possible 117 people were attacked. There was no spread of the disease in the girls' homes, nor were any of the visiting masters and mistresses affected.

Symptoms.—The chief symptom was that of *vomiting*, which occurred in forty-two of the fifty-two cases. The sickness came on quite suddenly, so that several of the girls were sick wherever they happened to be in the school or grounds ; but a great many, having gone to bed apparently well, woke up in the morning and were sick before they could get out of bed. Many of the patients were sick only once, and in no case did the vomiting go on for more than four to six hours. The onset of the vomiting is well shown in the following case.

A. R., aged 10. As subject to vomiting attacks she was removed from the school on the morning of March 25th to her home in London. On the next day at noon she was

* It appears that the Danish authors use the term "nausea" in its original meaning of "sea-sickness." It would thus include vomiting and giddiness, as well as the feeling of sickness, to which the meaning of the term is limited in the present paper.

inspected by one of us (R. M.), and was found to be looking very well, with a clean tongue, flat abdomen, and no gastric splashing. She took her food well throughout that day and retired to bed at night, taking a cup of ovaltine. At 6.30 the next morning, after sleeping well, she awoke and vomited the ovaltine which she had taken ten hours previously. She passed into an attack of vomiting, which lasted for forty-eight hours: this differed from her usual attacks in that there was no rise of temperature or signs of catarrhal infection.

Nausea was another prominent symptom, and, rather curiously, appeared as an alternative to the vomiting. Those that were sick showed little or nothing in the way of premonitory nausea; as already mentioned, they were attacked quite suddenly by the vomiting; but in ten instances there was nausea lasting for several hours and unaccompanied by vomiting. This type of attack was relatively rather more common amongst the adult patients, and was in some instances accompanied by severe giddiness.

Giddiness was complained of by thirteen of the fifty-two patients, and was particularly severe among those who suffered from nausea without vomiting, some of whom regarded the giddiness as the cause of their feeling so nauseated. The same symptom also occurred in nine of the group that vomited (eight girls and one adult). Like the other symptoms, the giddiness passed off after a few hours.

Other symptoms were chiefly remarkable for their absence, except for slight coating of the tongue and loss of appetite remaining for a few hours after the more urgent symptoms had passed off. Temperature readings were taken in all the cases arising in the school, but in only two instances was the temperature slightly raised at the onset of the symptoms (100°-101° F.). All the other cases were afebrile throughout. Other abdominal symptoms were notably absent. There were no complaints of abdominal pain or tenderness, and no case developed diarrhoea. No aperients were administered. No respiratory catarrhal symptoms were present.

Course and Treatment.—With the exception of the case separately reported above, the vomiting or nausea did not last for more than four to six hours, and, as already stated, many of the children vomited once only. During these hours all food was withheld, but as improvement set in clear fluids were given. On the second day the patients got up from bed, and were encouraged to take light diet. At the end of this time appetite returned, and on the third day the patients were back into the ordinary school regime and taking full diet. There were no relapses or complications. No medicines were given throughout.

Incubation Period.—The last case developed in a girl seven days after leaving school, and eight days after the last case had developed at school. The incubation period must therefore extend for at least eight days, but in most instances was probably much shorter—two to four days.

Danish Epidemics

The epidemic reported above bears a close resemblance to two outbreaks recently reported from Denmark, forming part of an extensive epidemic in that country. The first of the reported epidemics occurred in July, 1935, and was described by A. Rischel[1] under the title of "Epidemic Nausea?" The second occurred in December of the same year, and was reported by E. J. Henningsen[2 3] under the same title. He was of opinion that the epidemic he investigated was the same disease as that reported by Rischel.

1. The first reported epidemic occurred in a Danish island summer resort (Ankalt), and was thought to have been brought by travellers from the mainland, where, it was found later, large numbers of people had been affected. The first case arose in a shop, and four days later the disease developed in a boarding house and other houses in the neighbourhood. It affected fourteen families of visitors, taking twenty-five people out of a total of forty-one, and spread to the staff of the boarding house (eight cases in eleven persons) and their families. Altogether forty-seven people contracted the disease. The symptoms consisted of anorexia, nausea, vomiting, and giddiness, giving the picture of sea-sickness. In twelve instances towards the end of the illness there was mild diarrhoea with mucus in the stools. (No mention is made of the presence of blood in the stools, or of whether aperients had been used.) No babies were affected. Temperature readings were not taken in all cases, but were found raised in only two instances. Complete recovery occurred in from a few hours to two and a half days; many of the patients did not go to bed, but only rested. The incubation period was judged to be something between two and seven days. The author was of the opinion that neither food-poisoning nor sunstroke was responsible for the symptoms.

2. The second reported epidemic was part of a widespread epidemic which was occurring in various parts of Denmark. E. J. Henningsen investigated an outbreak which took place in December, 1935, in the town of Roskilde, and published his account without delay to encourage others to report on the epidemics then occurring elsewhere in Denmark. The epidemic lasted for two and a half weeks in Roskilde, during which time the author estimated that more than one-third of the total population contracted the disease. He investigated two groups of families, one working-class and the other well-to-do. In 107 households, comprising 423 members, no fewer than 171 people were affected. No age was immune. The symptoms and course of the illness were the same as in the previously reported epidemic, and Henningsen had no doubt that both outbreaks were due to the same disease. He specially mentions that in the Roskilde outbreak the stools of the patients contained neither mucus nor blood. Another interesting point concerned the occurrence of relapses in some of the Roskilde cases: in thirteen instances the symptoms recurred after an interval of two to seven days, during which the patient had seemed completely restored to health. Apart from these most of the patients were well within two days. The incubation period was taken to be usually about two days. Neither the water nor the food supply could be incriminated. The spread of the infection by faecal contamination was regarded as unlikely in view of the equally rapid spread of the disease in two quarters of the town presenting widely different housing conditions. Henningsen suspected that the epidemic primarily affected the central nervous system.

Discussion

Taking first the English epidemic without reference to the Danish outbreaks, its most prominent symptom was either vomiting or nausea. In a quarter of the cases giddiness was also present, and in some instances this was so severe as to be regarded by the patients as the cause of their sensation of sickness. The negative features of the epidemic are no less important, particularly the almost complete absence of febrile reactions and the complete absence of diarrhoea. As an epidemic it showed two peculiarities: the transient nature of the symptoms without relapses or complications, and the high proportion of the school community which was attacked by the disease. Taken as a whole the picture of this epidemic illness appears to be something new to paediatric literature.

Comparing the English epidemic with the Danish outbreaks, there is a close similarity in fundamental points: the presence of nausea, vomiting, giddiness, and anorexia; the rapidity of recovery; and the high proportion of inhabitants affected. The similarity in these matters of the symptoms, course, and spread of the disease is so close in all three epidemics as to leave little room for doubt that they were the same disease. The differences between the English and the Danish epidemics were three in number: first, the Danish outbreaks were in no sense institutional outbreaks, but affected large areas of the country; secondly, in the English epidemic there were no relapses, whereas some of the Danish patients experienced a second attack within a week of their original illness; and thirdly, diarrhoea occurred in a proportion of the Danish cases and was absent in the fifty-two English cases. The last point will be discussed again; but here it must be said that, if the English and

Danish epidemics are to be regarded as essentially the same disease, diarrhoea must be allowed as one of the symptoms of the syndrome, even though it did not occur in the English cases.

Aetiological Considerations

Both the Danish authors satisfied themselves that the epidemics which they reported were not examples of food-poisoning of the ordinary types. In the English outbreak, with so many cases arising in the first two days of the epidemic, such an explanation was naturally the first possibility considered. But as the epidemic ran its course it became clear that this possibility could be set aside, and this view was ultimately confirmed by the fact that four girls developed the disease within one to seven days after leaving the school.

The actual causation of the epidemic disease remains quite obscure, but it is not without interest to consider its possible nature, more particularly whether it is to be looked upon as a disease of the alimentary or of the nervous system.

Considered as primarily a disease of the *alimentary system*, it becomes difficult to account for the symptom of giddiness which was present, sometimes severely, in a quarter of the English cases, and on which the Danish authors have laid so much stress. Other points against this view are the absence of fever, the suddenness of the onset of the vomiting, and the absence in the English cases of diarrhoea, even though the Danish epidemics are taken to prove that this symptom is part of the epidemic syndrome. Setting these points aside, the English epidemic resembles one originated by some form of food contamination ; the heavy incidence of cases in the first two days of the outbreak suggests this, although the same phenomenon may be seen in epidemic poliomyelitis, which all do not yet admit may be due to infected food.

In this connexion the only type of gastro-intestinal infection which seems to be worth considering is a possible gastric type of Sonne dysentery. The Sonne bacillus—as seen, for instance, in the wards of a children's hospital—produces an illness which lasts in individual children for two or three days only, spreads very rapidly and mysteriously, and involves a large proportion of the inhabitants of the ward. In these ways Sonne dysentery simulates the epidemics under discussion ; but, on the other hand, Sonne dysentery is essentially a febrile illness associated with diarrhoea, with mucus and usually blood in the stools, and in typical outbreaks vomiting is little seen. R. E. Smith,[4] however, has called attention to the gastric symptoms in Sonne dysentery, and has raised the question whether there should not be described a gastric type of this infection.

R. E. Smith described an epidemic of Sonne dysentery occurring in a school-house containing sixty-nine inmates (fifty-eight pupils and eleven adults). Of these, twenty-four were affected (twenty pupils and four adults). All cases were febrile, but in some the rise of temperature was very small. The illness lasted for from one to nine days, with an average duration of three days. Intestinal symptoms were frequent (diarrhoea, mucus with or without blood in the stools, abdominal pain, tenderness, and tenesmus). The gastric symptoms consisted of vomiting in five cases and nausea in eleven cases. No mention is made of the occurrence of giddiness.

Whether any of the cases with gastric symptoms were free of intestinal symptoms is not clear ; if they were it is evident that they were very few in number, since, out of a total of twenty-four cases, gastric symptoms were complained of in sixteen instances and intestinal symptoms in twenty-two instances. Evidently intestinal symptoms must have been present in most, if not in all, of the gastric group. However, the author was impressed by the importance of the gastric symptoms in the Sonne epidemic which he reported, and was prepared to think that the brunt of the infection might fall on the stomach rather than on the intestine.

In the Danish epidemics diarrhoea was present in a proportion of cases, though it did not occur in the English epidemic, and in the first Danish account the occurrence of mucus in the stools is specially mentioned, though whether aperients had been given is not recorded. The diarrhoea was mild, and occurred at the end of the attack. In the second reported Danish epidemic neither mucus nor blood appeared in the stools.

Thus, except that the occurrence of giddiness and the almost complete absence of fever remain unexplained, it might be held that the Danish epidemics represented a modified form of Sonne dysentery ; in which case the English epidemic might be taken to be the same disease in a still more attenuated form, but it must be confessed that the chief attraction of this hypothesis lies in the fact that it provides a known cause for the epidemics described here.

Regarded as a possible infection of the *central nervous system*, the suddenness of the onset of vomiting, the occurrence of giddiness, and the absence of fever are in favour of such a hypothesis. Henningsen, in reporting the second Danish epidemic, suggested that the symptoms were not due to gastro-enteritis, but reflected an involvement of the nervous system. Evidently the same thought was in Rischel's mind, since he was at pains to exclude sunstroke as the cause of the first epidemic. The same possibility was considered in connexion with the English outbreak, but it is impossible to hazard any opinion on the type of infection of the nervous system which could be responsible for these epidemics. The Danish outbreaks occurred in July and December, 1935, and the English one in March, 1936, so that there is no evidence of any particular seasonal incidence as in poliomyelitis or epidemic hiccup.

" Epidemic vertigo " as described by O. Leyton[5] does not appear to have been the same type of epidemic as reported in the present paper. The author was of the opinion that the epidemic was not a form of influenza as was suggested by A. N. M. Davidson.[6]

Perhaps if other epidemics are observed some cases of more than average severity will give a clue to the nature of the infection at work and the system of the body primarily affected.

Summary

An epidemic presenting apparently novel features has been described as occurring this year in an English boarding school. Its characteristics were: (1) the sudden onset of nausea or vomiting, sometimes accompanied by considerable giddiness ; (2) the very short course of the illness ; and (3) the high proportion of residents infected during the fifteen days of the epidemic. It is claimed that these characteristics show that it was the same disease as that described by Danish authors as " epidemic nausea " (sea-sickness), occurring in extensive epidemics in Denmark since the summer of 1935. Whether it should be regarded as a disease of the alimentary or of the nervous system has been discussed.

Miss Kylla Pauli is thanked for her kind help in translating the Danish literature.

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A BOX MASK FOR ADMINISTRATION OF OXYGEN

BY

J. ARGYLL CAMPBELL, M.D., D.Sc.

NATIONAL INSTITUTE FOR MEDICAL RESEARCH, HAMPSTEAD

This mask is introduced primarily to reduce the wastage of oxygen which occurs with similar open methods and also to improve conditions as regards comfort for the patient. As it is an open method there is no isolation of the patient from his surroundings for prolonged periods, as occurs when tents are employed. In general the mask is just as efficient as the tent in providing the required pressure of oxygen ; running expenses include only cost of oxygen. As there are no valves and the mask is freely open at its lower end to the air there is no resistance at all to breathing such as occurs when valves are included. The mask is very light, and although it may

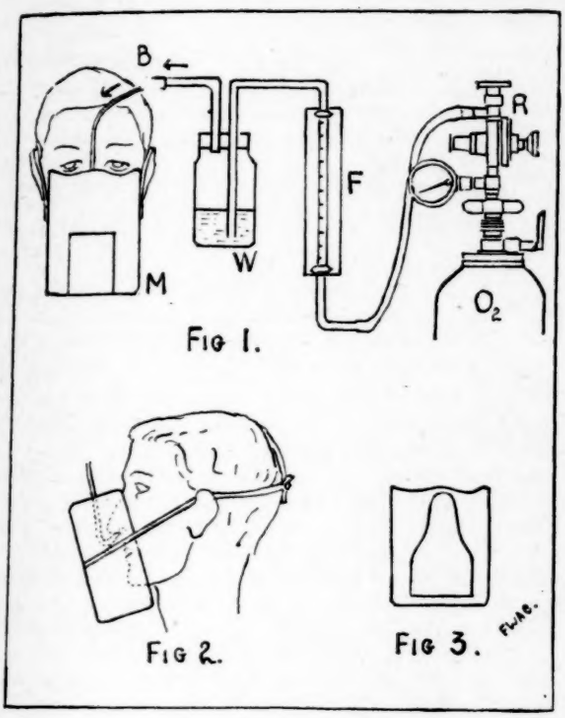

FIG 1.

FIG 2.

FIG 3.

be improvised from cardboard it is best made of thin aluminium. The aluminium mask may be obtained from Messrs. Siebe Gorman and Co., 187, Westminster Bridge Road.

Description

As used for the average adult, the box mask has, when in position, a gas capacity of about 1,000 c.cm. Its length is about 15 cm., its breadth 12 cm., and its depth 7 cm. For larger faces each of the dimensions may be increased 1 cm. and for smaller adult faces reduced by 1/2 cm. The long axis of the box lies in the long axis of the face (Fig. 1), while the plane of the breadth of the mask is parallel with the plane of the mouth. The plane of the depth of the mask is nearly at right angles to the plane of the face (Fig. 2). The back of the mask (Fig. 3) has a bottle-shaped opening to accommodate the nose, mouth, and chin ; it is made airtight in this way by gentle pressure against the face, the mask being kept in position by tapes—attached to the mask by buckles on the sides—passing over the top of the ears. The bar below the chin is of no significance, and when removed allows wide opening of the mouth. As the mask is very light, only gentle pressure against the face is required to keep it in position. The lower end of the box (12 cm. by 7 cm.) is entirely open to the air, while the top is completely closed except for the opening which admits the catheter. There must be no air space at all round the catheter where it enters the top of the mask ; adhesive plaster will suffice to make this position airtight. The sides of the mask (15 cm. by 7 cm.) are closed. The front is also airtight, but there is a door in the lower half, which may be opened during meal times or administration of medicine (Fig. 1). Moisture from the lungs may condense on the inside surfaces of the mask ; this is caught by a thin strip of lint fixed all round the lower edge of the mask by means of clips or small pieces of plaster. Small openings 1 cm. deep may be cut running parallel with and just above the lower ends of the sides and the lower end of the door. They serve as emergency openings if the lower end of the box comes into contact with the chest.

The complete arrangement is shown in Fig. 1. O_2 is the oxygen cylinder, with its standard automatic regulator (R) ; F is the bobbin flowmeter to measure the rate of oxygen flow ; W is the water valve to moisten and, if necessary, warm the oxygen ; to warm W it may be placed in a basin of warm water. At B there is a break in the diagram (Fig. 1), but this break does not exist in reality ; it represents the light rubber tube leading from W to the catheter ; it is an important piece of tubing, and must be fixed to the head of the bed above the patient, so that there is sufficient slack tubing to permit movement of the patient. Apart from the catheter all the tubing, both rubber and glass, is about three-quarters of a centimetre in diameter ; the catheter itself is fixed to the opening at the top of the mask, so that any strain on the catheter will be transmitted to the mask and not to the end of the catheter, which lies either three inches in the nasal cavity or free outside and slightly above the level of the nose. When the catheter is in the nose there should be a sufficient length of it inside the mask to permit it to curve gently into the nose without pressure inside the nose. Three holes are made in the nasal end of the catheter ; both No. 9 and No. 11 of the red rubber variety have been used with success. When the catheter is outside the nasal cavity its end must be directed up towards the top of the box, so that the oxygen impinges against the top wall ; the catheter may be kept bent on itself by means of a ligature.

For the efficient working of the mask it must be airtight at its upper half. Of course at its open lower end a certain proportion of air is drawn up at each inspiration, and this mixes with the oxygen, of which there is a continual flow. When the catheter is outside the nose the rapid upward current of oxygen also sucks some air into the centre of the mask. There is a gentler flow of oxygen down the sides. We have tested three cardboard and three aluminium masks, and they all give very similar results. Sometimes aluminium mask No. 2 gave slightly lower results than the others ; it has a greater capacity.

Results

Details of some of the results for alveolar CO_2 and O_2 with the box mask are given in Table I. With 4 litres of oxygen per minute and the catheter three inches inside the nasal cavity the alveolar oxygen pressure is about 40 per cent. ; with 5, 6, and 7 litres a minute it is 50, 60, and 70 per cent. respectively. The figures are not altered by the position of the subject, being the same for both the sitting and the lying positions. With the catheter outside the nose, and about 5 to 6 litres a minute, the alveolar oxygen pressure is between 40 and 50 per cent. ; with 8 litres per minute it is between 50 and 60 per cent. It must be emphasized that when the catheter is outside the nose its end must be turned up towards the top of the mask.

The subjects employed in these observations have a respiratory volume, when at rest, of 7 to 8 litres per minute. Alveolar air was taken with the oxygen flow stopped. The rate of flow was controlled by four different meters, two of which are standard water meters.

In Table II the results with the box mask are compared with those for other similar open methods[1 2 3]—that is, with the patient not enclosed in a tent or using an apparatus with valves. It is obvious that even with the catheter outside the nose the box mask uses only half the amount of oxygen consumed by other methods. Of course tents can be run on 2 to 3 litres a minute and

TABLE I

Subject and Position	Rate of O_2 flow, Litres per Min.	Alveolar Pressures % Atmosphere		Position of Catheter	Mask Used
		CO_2	O_2		
C. P., sitting ...	1.9	6.6	26.2	3 in. in nose	Cardboard, No. 1
	4.0	5.8	40.1		
	4.3	6.4	41.9		
,, ,,	5.0	6.7	50.5	,,	,, ,,
	4.6	5.6	50.3		
	4.6	6.1	47.9		
,, ,,	4.5	6.6	48.7	,,	,,
	5.0	6.5	53.0		
J. A. C., ,,	5.1	6.6	50.9	,,	,, No. 2
	4.8	6.0	48.6		
C. P., ,,	5.0	6.1	53.6	,,	,, No. 1
,, ,,	5.7	6.1	56.7	,,	Aluminium, No. 1
	6.0	6.1	56.6		
	5.7	5.9	57.5		
J. A. C., ,,	6.0	6.1	57.5	,,	Cardboard, No. 2
	6.0	6.1	59.5		
,, ,,	5.6	6.0	51.5	,,	Aluminium, No. 2
	6.4	5.8	55.0		
	6.0	5.9	58.6		
,, ,,	8.0	5.2	50.0	Outside nose	,, ,,
	8.0	5.0	50.0		
C. P., ,,	7.0	6.9	73.1	3 in. in nose	Cardboard, No. 1
	6.5	6.6	72.0		
,, ,,	5.0	6.5	48.9	Outside nose	,, ,,
	6.0	6.0	43.2		
,, ,,	6.6	6.5	47.8	,,	,, ,,
	8.0	6.5	52.0		
,, ,,	8.0	6.3	54.0	,,	,, ,,
	8.0	6.3	60.3		
	8.0	6.4	54.5		
,, lying down	5.5	6.7	62.7	3 in. in nose	,, ,,
	5.9	6.3	66.8		
	6.0	6.2	67.4		
,, ,,	6.3	6.8	44.9	Outside nose	,, ,,
	6.0	7.0	44.2		

TABLE II

Method	Rate of O_2 Flow, Litres per Min.	Alveolar O_2 Pressure % Atmosphere
Catheter [2]	7	34.5
Forked nasal tube [2]	7	38–43
Double catheter [3]	8	39–42
,, ,, ...	12	38–52
,, ,, ...	16	52–63
Box mask (J. A. C.) (catheter inside nose) ...	4	40
,, ,, ,, ,, ,, ...	5	50
,, ,, ,, ,, ,, ...	6	60
,, ,, ,, ,, ,, ...	7	70
,, ,, ,, outside ,, ...	5 6	40–50
,, ,, ,, ,, ,, ...	7–8	50–60

maintain 60 per cent. alveolar oxygen pressure, but tents require also soda lime and special cooling mechanism and much more attention ; also the patient is isolated when in the tent. The box mask thus appears to be superior to the other methods in all respects under ordinary circumstances ; of course there may be cases more suitably treated in tents—for example, infants.

The carbon dioxide alveolar pressures shown in Table I are similar to those given by other methods, so that the box mask does not cause any undue accumulation of carbon dioxide. This is to be expected with flows of oxygen at 4 or more litres per minute. There is a gentle flow of oxygen down the sides, and this has a cooling effect. With the catheter outside the nose this cooling effect is distinctly pleasant.

Similar results are obtained with the mask upside down —that is, with the open end at the top and the catheter directed downwards. This position is not so convenient.

At present observations are being made on children with a smaller box mask, and there is every reason to believe that it will be of value at least to older children.

Summary

A box mask is described which permits a great saving in consumption of oxygen and also gives less discomfort than other methods of administration. In actual practice no analysis of gas is necessary, the efficiency of the apparatus being controlled by a suitable flowmeter only. It is recommended to run the mask on 5 to 6 litres a minute, with the catheter or tube outside the nose and its end directed upwards. As with all other oxygen apparatus, no naked flames are allowed in its vicinity. Smoking is not permitted.

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DECREASING MORTALITY AND ELIMINATING PHTHISIS IN MENTAL HOSPITALS

BY

A. W. B. LIVESAY, M.B., F.R.C.S.ED.
SURGEON CAPTAIN R.N.
LATE DEPUTY SUPERINTENDENT, ST. ANDREWS HOSPITAL, THORPE, NORWICH

The dual title of this paper is due to the two subjects being interdependent. In an effort to reduce the death rate phthisis was the first point of attack. It was soon found that the special measures taken to reduce phthisis had also a wider effect in lowering the general death rate.

The author of this paper, after twenty-six years' service in the medical branch of the Royal Navy, was appointed medical officer in sole care of the female side of a large mental hospital averaging 650 individuals. The Navy tends to make its medical officers statistically minded. The Blue Book *The Health of the Navy* issued to every officer is not only received but studied. The whole Service, from the director-general down to the most junior surgeon, is constantly working for the reduction, year by year, of the average daily sick list. Each medical officer of a ship strives to have the lowest sick list in his Division, announced from the flag-ship by signal on Sunday forenoon. So each Division competes to have the lowest sick list in the Fleet. A wider rivalry exists between the Fleets themselves on the various home and foreign stations.

It was strange on joining the mental service to find little evidence of such emulation. The anomaly could be seen of two mental hospitals not one hundred miles apart, and subserving similar sections of the community, in which the death rate of one was double that of the other. Apart from those under "group management," such as the London County Council, each mental hospital, good or indifferent, seemed to wear an air of isolated self-sufficiency. There is no sick list in the mental service ; the tests of efficiency are the death rate and the recovery rate.

The very great advances made in recent years of treatment from the psychological side, and the limelight thrown on these methods, tend to obscure treatment purely physical. The two methods must go hand-in-hand.

Enthusiasts sometimes need reminding that psychotherapy can only be practised on the living. If there is any meaning in modern hygiene and dietetics the patients in a mental hospital should be among the healthiest in the nation. They are cloistered alike from the excesses of the rich and the privations of the poor. The medical officer of health for a district, apart from statutory regulations, can only influence the individual by exhortation and persuasion. In comparison the superintendent of a mental hospital, in all that affects the immediate well-being of his patients, is from the hygienic standpoint an autocrat.

On appointment as medical officer and in charge of the female side of St. Andrews, the Norfolk county mental hospital, in May, 1922, the writer's ambition was to have as low a death rate as any in the country. This aim was attained by the end of 1927.

Work in the Hospital

The building had few structural or other advantages, excepting that it was exposed to every wind that blows! The hospital for female patients, a quarter of a mile distant from the male side, is the original building, erected over one hundred years ago, and added to from time to time. It occupies a site in the Yare Valley close to the river, very few feet above sea-level, and is subject to frequent fogs. The primary aim being to reduce phthisis, it was considered that the measures taken in sanatoria to effect its cure would, if applied in a mental hospital, lessen its incidence. Apart from special methods in complicated cases, the two essential factors of sanatorium treatment are open air and diet.

Dr. O. G. Connell, appointed medical superintendent in 1922, at once entirely reorganized the diets on an extremely liberal scale, based on the report of the Departmental Committee on Dietaries for Mental Hospitals set up by the Board of Control. In the same year the writer started "open air" on the female side. The figures above in *parallel* lines give a comparison of the general death rate and phthisis mortality on the female side in St. Andrews Hospital for two periods of ten years each. For the earlier decade later figures than 1914 could not be given, since during the war the whole institution was taken over by the War Office as a base hospital. The figures in *vertical* columns show the gradual and steady improvement in the general death rate and the lessening of deaths from phthisis from 1922 to 1935 inclusive. For comparison death rates and recovery rates (female) are also given for England and Wales, taken from the annual reports of the Board of Control.

Average for the Ten Years 1905–14 Inclusive				Phthisis Total No. Deaths in 10 years
Numbers Resident	Percentage of Deaths	Recovery Rate	Phthisis Deaths per annum	
563	10.2	38.6	11.2	112
Average for the Ten Years 1926–35 Inclusive				
671	5.0	40.6	1	10

*Open Air and Improved Diets Started	Percentage of Deaths	Deaths from Phthisis	Recovery Rate	England and Wales	
				Percentage of Deaths	Recovery Rate
*1922	9.7	7	46.8	8.3	34.8
1923	6.2	6	40.6	6.9	34.0
1924	8.2	4	47.5	7.0	37.0
1925	6.7	3	52.7	6.9	34.0
1926	5.9	2	51.8	6.6	34.2
1927	4.9	0	29.8	7.3	33.5
1928	4.4	1	55.2	6.5	32.9
1929	5.0	1	31.9	7.7	33.9
1930	4.4	1	39.4	6.1	35.3
1931	6.0	1	32.8	6.8	33.3
1932	6.4	1	33.8	7.4	33.0
1933	4.8	0	46.0	7.0	35.3
1934	5.3	1	56.2	6.4	33.3
1935	3.3	2	29.9		

By comparing the two periods of ten years each it is seen that in the second period (1926–35) the average death rate has been halved, and that it has been reduced by almost 5 per cent. How is this 5 per cent. made up?

It is evident that about two-fifths of it is due to the lessening of phthisis. Probably another fifth is due to compulsory feeding. These will be considered later. The remaining two-fifths of the halving of the death rate in the same period are attributed to two factors—namely, open air and the improved dieting. It is considered that these two factors have probably acted in conjunction with equal force, and that similar results would not have been obtained from either acting alone.

The Patients' Diet

In a mental hospital the psychological effect of varied and attractive meals is of great importance. Most acute cases of mental disease on admission are in a poor state physically, under weight, and require "feeding up"; for these the ordinary diet has to be supplemented with milk and extras. In any mental hospital the chronic patients make up the great majority, over 95 per cent. of the total, excepting, of course, those special hospitals like the Maudsley and Royal Bethlem, which only deal with acute and recent cases. These chronic patients have little hope of discharge, and must lead a dull and featureless existence, in spite of all that is done for them in the way of occupation and amusement. They can be compared to the passengers of a liner on a long sea voyage, when, as everyone knows, the bugle calling to meals has a vastly exaggerated importance. A liberal diet does much to make these patients happy and contented.

A question frequently asked by laymen is "Why prolong the lives of these unfortunates?" Apart from it being a doctor's duty to keep his patients alive and in the best of health, it is a fact that many of these chronic patients do enjoy their limited existence in a way not comprehended by normal people. It also happens rarely and for reasons outside our present knowledge, that an apparently hopeless chronic case will suddenly begin to improve, eventually make a complete mental recovery, and be discharged after as long as fifteen or twenty years' residence in hospital.

The patients in St. Andrews Hospital have extras at breakfast, tea, and supper, the latter meal only for those allowed to sit up late. All workers have an additional meal called lunch at 11 a.m., consisting of bread and cheese and tea. The excellent dinners are arranged on a twenty-one-day rota, so that each dinner is a daily surprise. The food is of the best quality, and all meat is from beasts home bred or reared.

Open Air

The system of open air, or rather "open windows," adopted was as follows. Every window in all day rooms, sick wards, dormitories, corridors, and kitchens was kept fully open day and night, winter and summer. This was not so drastic as it sounds, for many of the windows on the upper story were "blocked," and could only be opened to a limited extent at top and bottom. Common

sense also dictated some modification during driving rain and snowstorms, but not for mere fall in temperature.

The only difficulty was in dormitories with no nurse on fixed duty. Here the patients could and did shut the windows, and the air by morning used to be extremely foul. To obviate this, small wooden blocks, 4 inches in length and 1½ inches in depth, were screwed to the upper part of the window frame, preventing closing of the upper sash, and thus securing a double supply of fresh air at the top and in the middle where the sashes overlapped. As a further aid to the prevention of contagion all beds where practicable were arranged with the head of one opposite the foot of the next alternately, as hammocks are always slung in the Navy. This doubles the interval between the patients' heads and thus lessens bed-to-bed infection in catarrh and influenza.

There was no system of central heating, open fires being in use everywhere excepting in a few corridors, where there were hot-water radiators. In the day rooms, occupation rooms, and sewing rooms, with ample fires kept up, there was no discomfort even in winter. In the sick wards the temperature on the coldest nights in winter was frequently as low as 45° F. This was immaterial so long as the patients were warm in their beds, which could always be secured by the use of extra blankets and hot-water bottles. The minimum temperature advocated in the approved textbook for nurses is unnecessarily high, and on really cold nights cannot be adhered to without producing a stuffy atmosphere.

An experience of the writer when in charge of the Royal Naval (Mental) Hospital at Great Yarmouth was illuminating. There was in that hospital one long twenty-bed ward, with windows on each side, in which were patients in the third stage of general paralysis—than whom none have a more precarious hold on existence. The experiment was tried of open windows in the very severe winter 1920–1. All windows were kept open day and night, with the exception that during gales the windows on the weather side only were closed. No deaths occurred in this ward until the June following, when two patients died during a heat wave.

The female patients at St. Andrews Hospital accepted this regime with little trouble. There were, of course, some recalcitrants ; on the other hand, there were not a few "fresh air fiends." An aesthetic advantage, noticeable after forty-eight hours' adoption of open windows, was the entire absence of the disagreeable so-called "asylum odour," which by many is still thought to be a necessary concomitant of mental patients.

With the system of "open windows" as described there is a great lessening of all infectious diseases. Ordinary catarrh is greatly reduced ; influenza, although there have been several epidemics in the last few years, seems to have lost its virulence. There were two deaths from influenza in the ten years 1926–35, and no deaths from dysentery. Paratyphoid infection, which at one time threatened to become endemic, has almost disappeared, and only two cases have been notified in the last three years. During the whole period there has been on the female side a certain amount of overcrowding. This to a moderate degree is of little consequence, for with open windows the cubic capacity is infinitely expansile.

Another great advantage of "open windows" is the consequent improved health of the nursing staff. The nurses co-operated enthusiastically. When very cold they were allowed to wear their uniform great-coats on night duty. This confirms a statement, often made, that women are far more tolerant of cold and draughts than men. For the last ten years there has been among the nurses almost complete immunity from catarrh, with no serious cases of influenza, and, excepting for a trouble-some epidemic of Vincent's angina, little serious illness. With a staff of over one hundred nurses there have been only three cases of phthisis in the last ten years, 1926–35, all of which responded favourably to treatment.

Pulmonary Tuberculosis

Two-fifths of the reduction in the death rate was attributed to the lessening of this disease. Comparing the two decades in the figures given above it is seen that the total deaths from phthisis have fallen from 112 in the years 1905–14 to ten in the second period 1924–35. It is evident, in the first four years 1922–5, how closely the fall in death rate from phthisis coincides with a steady lowering of the general death percentage. It was anticipated that fully ten years must elapse before the phthisis rate would show marked improvement. Results came along much sooner than was expected, for as early as 1926 almost the lowest figure was recorded.

This under-estimate was due to the writer holding the old, and probably incorrect, view of phthisis—namely, that most cases are due to a quite recent infection. But the modern view of phthisis, as put forward by that pioneer of open-air treatment Sir Robert Philip, seems more nearly to meet the case. He holds that tuberculosis is primarily an infection of the lymphatic system, the tubercle bacillus gaining entry during infancy through the mucous membrane of the nasal passages, and that phthisis is a late manifestation of this generalized infection. According to this theory it would appear that a majority of the children in a civilization such as ours are infected in infancy, resistance varying with the individual. For all those showing signs of poor resistance, as evidenced by such signs as glandular enlargements and subnormal physique, Sir Robert practises what he calls "detuberculization," which in essence comprises open air and a liberal diet. It appears that what has been done during the last thirteen years at St. Andrews Hospital is an experiment in "detuberculization" on over 750 individuals, including the nurses.

No stress was laid on sputum examination or *x*-ray examination of the chest, for these are considered to indicate only late manifestations of the disease. The earliest sign is loss of weight. Every patient in the hospital was weighed monthly, and a record was kept in each ward, loss of weight being entered in red ink. Thus any repeated loss at once claimed attention. If any patient showed loss of weight for several months, for which no other cause such as refusing food, undue excitement, or definite physical illness such as diabetes could be assigned, the temperature was taken at 2 p.m., 4 p.m., and 6 p.m. Any slight but repeated rise above the normal was considered to be an indication of phthisis, and the patient was at once transferred to the open-air ward.

Without an open-air ward for the segregation of suspects and early cases little can be done ; the medical superintendent provided an excellent open-air ward with nineteen beds. Such a ward need not be an expensive affair. It can be constructed against any solid wall facing south. It needs a sloping tiled roof of sufficient depth to prevent rain falling on the beds, a concrete floor with linoleum strips, electric lighting, a bath and sanitary annexe at one end, a nurses' room at the other, with a small day room for patients, and with a small kitchen or scullery fitted with a gas ring. In addition, roll-up canvas screens must be provided to exclude driving rain and snow.

The statement frequently made that patients suffering from dementia praecox are the class most prone to develop phthisis was not found to be true. This idea is probably due to the fact that these patients form the majority of the young people in a mental hospital and are at the age of the greatest phthisis incidence.

Against the slight discomfort caused by open windows must be weighed the very real suffering that the disease entails. With ten deaths yearly there would constantly be at least twenty patients in various stages of illness. In any institution showing a high incidence of phthisis, as was the case at St. Andrews Hospital before the war, the cause must be looked for in the conditions of the institution itself. It is not due to fresh admissions.

In Norfolk, taking the figures of the medical officer of health as to the number of cases of phthisis in the county, the expectation of admitting a female patient with the disease already established is only about once in two years. Such cases too, in these days, would probably have been already notified.

Compulsory Feeding

To compulsory feeding is attributed one-fifth of the reduction in the death rate. The gospel of prompt and energetic tube feeding, as taught at the Royal Bethlem Hospital thirty years ago, seems nowadays to be largely disregarded. It has been stated on excellent authority that at one large mental hospital no forced feeding has been imposed for the last twenty years.

This is deplorable, for nearly all the patients needing this form of treatment are "recent admissions," and therefore patients in whom the hope of mental recovery is good; if not fed they certainly die. Cases of melancholia are obvious, and easy to treat by tube feeding.

On the other hand, the feeding of acutely maniacal patients is extremely difficult, but with proper technique and a well-trained staff there is no danger. A general anaesthetic was never required, but to several very violent patients it was necessary to give hyoscine 1/100 grain an hour previous to the feed. A preliminary gastric wash-out was frequently needed before feeding could be commenced.

Medical officers do not appreciate the urgent need for compulsory feeding in cases of acute mania. Vilhjalmur Stefannson, the Arctic explorer, states that after four days of complete deprivation of food appetite is entirely lost. Many cases of acute mania on admission to hospital have probably had next to no nourishment for quite this period, so it is readily understood that in their mental state, and with no desire for food, they are extremely resistant. The prolonged and intensive restlessness in these patients is equivalent to severe hard work, and imposes a terrific strain on the physique. The writer has become more and more sceptical about that textbook entity "acute delirious mania." The signs and symptoms given are in complete accord with acute mania plus famine. For the last ten years, during which compulsory feeding of all cases of acute mania requiring it was carried out, no case has been seen.

In all acute mental states the primary essentials are food, sleep, and fresh air, and not until these have been attained can the physician begin to rebuild the mind by psychotherapy, occupational therapy, or such other methods as his experience may dictate. Statistics of tube feeding were only kept during the last five years, 1930–4 inclusive. In that period 2,376 tube feeds were given. Being single-handed in charge of 650 patients, including recent admissions, there was no need to look for work, and this number must be taken as the minimum requisite. During the five years fifty-five patients were compulsorily fed; of these only five were chronic cases—that is, patients who had been in hospital a year or more.

Of the fifty "recent admissions" seventeen were "discharged recovered," giving a "recovery rate" of 34 per cent., which, considering the type of case, compares well with the recovery rate 34.1 for all classes of patients from England and Wales for the same five years. Of the seventeen patients discharged recovered nine were cases of mania, one of stupor, and seven of melancholia. Many of these patients arrive in hospital too late, and a grave responsibility rests on the practitioner attending the case. There is much talk to-day of the "early treatment" of mental patients; here early treatment is of vital importance.

In any case of serious refusal of food the medical practitioner in attendance should put the patient on fluid diet, and the amount of nourishment taken in each twenty-four hours should be exactly recorded in ounces by a nurse or a responsible relative. If at the end of a day or two it is evident that sufficient food is not being received the patient should at once be sent to hospital, where compulsory feeding can be carried out. Some patients with melancholia can be persuaded to come to hospital voluntarily; in all other cases certification must be resorted to.

Conclusions

The death rate in mental hospitals, although falling steadily, can be very materially reduced. Phthisis can be practically abolished in all mental hospitals and kindred institutions.

I have to thank Dr. Connell, medical superintendent, for encouragement in doing this work, and for permission to use the figures quoted.

OPHTHALMOSCOPIC SIGNS OF DEATH

BY

C. RUSSELL SALSBURY, M.D.

AND

G. SPENCER MELVIN, M.D.

(From the Departments of Anatomy and Physiology, Queen's University, Kingston, Ontario)

It has been a repeated clinical observation of one of us (C. R. S.) that definite changes, easily visible with the ophthalmoscope, appear in the retina in the dead or dying patient. In life the actual movement of the column of blood is visible in the retinal veins. As death approaches the stream seems to become slightly irregular and "lumpy," although without any actual breach of continuity. Later there is definite fragmentation of the column, and it is a striking spectacle to see these masses of blood move toward the optic disk and then drop over the edge of the optic cup. If one can imagine watching, from the air, long columns of infantry marching along converging roads, the men finally falling over a steep cliff shortly before the intersection, he will have a very accurate picture of the actual phenomenon observed.

This is not a transitory effect. Although no actual timing has been attempted, one would estimate that the movement is visible for about ten to twelve minutes on an average. During this time two changes very gradually occur. The rate of motion becomes progressively less, and the fragmentation progressively more definite. It is as though the marching columns of men, at first in close formation and without organization, gradually formed into companies, with definite intervals between them. These intervals become greater as the rate decreases.

After all movement has ceased the interrupted columns are still plainly visible. So long as the media remain transparent there is no difficulty in differentiating this appearance from the former or from the normal appearance during life.

The Problem

The exact significance of this observation was not clear on clinical findings alone. The early stages, as described above, have not been seen in the human subject, the

earliest clinical observation being at the beginning of fragmentation. Did the movement become visible because of a slowing of the circulation, permitted by a failing heart, and did the final cessation indicate the point of death? Or did the beginning of visible change indicate the final failure of the heart?

Experimental Investigation

In order to shed further light on the problem recourse was made to the physiology laboratory. Preliminary ophthalmoscopy was performed on each animal, and this precaution prevented a waste of time and animals. In both dog and cat the retina contains large but varying amounts of green pigment, in some cases so extensive as to render satisfactory study of the vessels impossible. The pigment is usually more plentiful toward the periphery, but in some cases is limited to one-half of the retina, the other being the usual pink colour of the human retina; in other animals the distribution is very irregular, in places being so dense and with such clearly defined margins as to suggest crystals. Two types of experimental procedure were at our disposal, and the methods employed, with the results obtained, are outlined below.

1. *To Depress the Circulation.*—(*a*) One common carotid artery was compressed after open exposure. No change could be seen in the retinal circulation of the corresponding eye. (*b*) The heart was slowed by vagal stimulation. This also produced no visible effect, so long as the stimulation was not carried to the point of complete arrest.

2. *To Stop the Circulation.*—(*a*) The heart was stopped by vagal stimulation. The ophthalmoscopic phenomenon appeared very promptly, disappearing when the heart resumed its action, either with vagus escape or on discontinuing the stimulation. (*b*) The ventricle was thrown into fibrillation by direct faradization. Shortly after fibrillation was well established the retinal change became visible, to fade back into the normal appearance as natural rhythm supervened. Frequently fibrillation persisted, and direct massage of the heart was necessary to restore the circulation. On one such occasion the examiner was watching the retina when the first artificial emptying of the left ventricle occurred. The edge of the advancing column of blood was seen to rush out through the artery and, almost instantly, the appearance in the vein was restored to normal. This was the only time when movement has been seen in the arteries, and reference to this point will be made later. (*c*) The aorta was compressed proximal to the innominate artery. This invariably produced the visible change, and was repeated frequently. The average time interval between the compression and the appearance of the change was about four and a half seconds—on two occasions as short as three and a half seconds. After relief of the compression the circulation returned to normal in less than ten seconds. This latter change is much more difficult to detect promptly, and the greater interval is probably due, at least partially, to uncertainty on the part of the observer.

When the animal finally died the entire series of changes, as outlined in the beginning of the paper, gradually followed. From the experimental evidence here briefly recorded we feel justified in drawing the following conclusions.

Interpretation of Results

1. When the described change in the retinal circulation becomes apparent cardiac activity has ceased. This does not include the few localized muscular contractions unassociated with any expulsion of blood. Appreciating the tenacity with which nature protects the cerebral blood supply, one would expect the retinal circulation to be maintained to the last. With one exception, to be mentioned later, spontaneous restoration is not to be expected under clinical conditions, and any patient in whom this sign is present is already dead.

2. It would appear that these changes follow in all cases. No observations have been made in patients with papilloedema, the higher degrees of which would almost certainly prevent their recognition. Any retinal condition associated with obscured vessels would probably render these signs impossible of demonstration.

3. The visible fragmentation, without movement, indicates that the circulation has been in abeyance nearly ten minutes at least.

We have outlined our conclusions regarding the significance of this sign, but by what mechanism is it produced? In view of our belief that complete cessation of cardiac function is necessary, there would seem to be only one possibility. Fortunately this is simple and convincing.

It is a universally recognized fact that on post-mortem examination the arteries are usually found to be collapsed and empty—the veins full. The greater elasticity of the arterial walls must be the force that drives the blood through the capillaries into the less strongly contracting veins. It is our belief that the movement observed is merely the result of this equalization of pressure. Arterial contraction cannot be as powerful as even the weakest cardiac contraction capable of producing circulation, since such contraction of the heart must dilate the arteries; therefore it seems obvious that the movement produced by arterial action alone must be less rapid. Herein lies the explanation of our failure to produce the effect by any depression of the circulation short of complete cessation.

But why is it visible in the veins alone? The answer to this is not quite so clear, but the greater thickness of the arterial wall must be responsible. We assume that it is seen only in the veins because the direction of flow is toward the disk. On one occasion movement toward the periphery was observed, but there is a great difference between the solid front of the re-established circulation, rushing through the vessel like a tidal bore, and the type of flow under discussion. It would seem, therefore, that this one observation of arterial flow does not in any way invalidate the conclusions previously reached.

Clinical Applications

We have here a new sign of death, apparently much more reliable than any hitherto in use. Patients may be alive, and even recover, after the circulation has reached such a low ebb that neither the pulse nor the stethoscope shows any sign of life. In such cases ophthalmoscopic examination would demonstrate the integrity of the circulation. The test has frequently been applied to patients in profound shock, but always with negative result until the moment of death. No patient in whom this phenomenon has been observed has subsequently shown the slightest evidence of life.

We submit that when this movement has been observed life has ceased. As has been repeatedly shown in our experiments, the cessation of the circulation is not necessarily irrevocable. Clinically, however, spontaneous recovery is scarcely to be expected. It is probable that the temporary collapse of the Stokes-Adams syndrome produces this sign as a transient effect during the period of syncope, but few clinicians are likely to be presented with the opportunity of testing this supposition.

This test does more than show that the heart has stopped. To the experienced observer it will indicate the approximate length of time without an active circulation. The profound importance of this, as a guide to the value of attempts at resuscitation, will be at once apparent.

Possibility of Resuscitation

It is suggested that in the great majority of cases reported as successfully resuscitated the application of this very sensitive test would have shown that the circulation continued. It remains to be seen if any patient in whom this sign has become positive can be restored to life. Under laboratory conditions, with the chest opened and the heart exposed, it is easily successful. Whether or not it can be undertaken in the operating theatre or under other clinical conditions will depend largely on the length of time the vital centres can be deprived of their blood supply without fatal result. Our opinions on this point may even require revision as a result of the application of this test. As a guide to attempts at resuscitation the following outline is suggested.

1. The retina appears as in health. The heart is still functioning and artificial respiration offers excellent prospect of saving a life.

2. Movement of blood in the retinal veins is visible. The heart has recently stopped and artificial respiration and attempts to start the heart are both indicated. The rate of the movement and the degree of fragmentation will be of assistance in determining the prognosis. In the absence of direct cardiac massage the chance of recovery must be small, but, in view of our lack of experience with this test, an attempt at restoration should be made.

3. Fragmentation is visible but all movement has ceased. It seems quite impossible that recovery can take place after this stage has been reached. The general application of this simple test would remove all trace of one of the most haunting fears of mankind—the chance of premature burial.

We are not prepared to make any definite statement as to how long after death the retina remains plainly visible. We have noted some lack of definition by the time all movement has ceased, but this has appeared to be due to drying of the cornea rather than to any actual change in the refracting media. With a history of normal vision inability of a trained examiner to see the retina may itself be accepted as evidence of death, provided the pupils are dilated and the corneas moist.

Should repeated observations on the human subject establish a relatively constant time for the production of complete opacity important medico-legal application might be expected. As it is, the ability to estimate the time of death with reasonable accuracy may occasionally be of legal value, although limited at present to about fifteen minutes.

No expert skill is required to make this test. If the vessels are plainly visible the movement should be readily detected. Examination is greatly facilitated by the wide dilatation of the pupils, invariably present. Only experience will enable one to recognize the finer details for the estimation of the time factor. If the possibilities of this application of the ophthalmoscope will lead a greater number of practitioners to avail themselves of the services of this valuable instrument a definite advance in the standard of diagnosis may be confidently expected. Incidentally it may be worth mentioning that a considerable experience may be acquired by examining one's household pets.

As a confirmation, or otherwise, of the results of our laboratory experiments we should be pleased if some physician would synchronize the appearance of this sign, in a human patient, with the electrocardiogram.

Summary

An ophthalmoscopic phenomenon is described, it is believed, for the first time. Experimental evidence is advanced to explain the visible facts, and suggestions are offered for its clinical application.

HYPERCHROMAFFINISM

BY

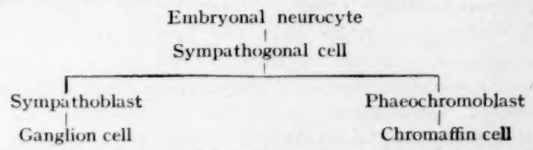
DIGBY CHAMBERLAIN, CH.M., F.R.C.S.

HON. ASSISTANT SURGEON, GENERAL INFIRMARY AT LEEDS; CLINICAL LECTURER IN SURGERY, UNIVERSITY OF LEEDS

Pathology

Hyperchromaffinism is a clinical condition due to an excessive secretion from the chromaffin cells of the suprarenal medulla. The condition has no connexion with tumours of the adrenal cortex, and sexual changes are not to be expected and do not occur.

The following scheme represents the changes that take place in the development of the adult chromaffin cell from the primitive neurocyte.



Medullary tumours may be simple or malignant and are rare, occurring in 1 in 3,950 consecutive post-mortem examinations, according to Saphir. The malignant type arises from the sympathogonal cell and occurs in the newborn or in very young children. A case is recorded by Peters and Horn[1] in a child aged 2. The child was listless and presented a swollen abdomen due to the presence of free fluid. There was massive enlargement of the liver and death occurred rapidly. A tumour of the right suprarenal was found at necropsy.

Simple tumours are phaeochromatocytomata and give rise to paroxysmal sympatheticotonia. According to Laubry and Bernai[4] the symptoms are paroxysmal in the early stages and become permanent later when changes have occurred in the cardiovascular system. An excessive action of the sympathetic nervous system is to be expected because adrenaline is the necessary connecting link between the sympathetic nerve end and the structures which are under its control.

Symptomatology

Phaeochromatocytomata are associated clinically with:

1. Paroxysmal hypertension.
2. Glycosuria.
3. Periodic tachycardia.
4. Attacks of pallor followed by flushing of the skin.
5. Headache, nausea, and vomiting.
6. Attacks of coma due to hypertensive encephalopathy.
7. Dyspnoea and choking.
8. A susceptibility to shock.
9. Pulmonary oedema.
10. Occasionally von Recklinghausen's disease.
11. Cardiac hypertrophy on post-mortem examination.

The susceptibility to shock mentioned above is important from a surgical point of view as it may occur during the course of an operation. It is recorded by several observers. Belt and Powell[2] record a case in a Jewess aged 45 who had a blood pressure of 170/80. An anaesthetic was given and the patient became alarmingly ill with a blood pressure of 300/240 before the operation had started. She was sent back to bed and died the next day. At the post-mortem examination a tumour of the right suprarenal was found. Collar, Field and Durant[3] record a case in a boy of 16 who had a tumour of the right adrenal. His blood pressure was 125/105 but rose enormously during the attacks. When the blood pressure was at its height it could be reduced by 100 mm. of Hg by the administration of amyl nitrite. He was given gas and oxygen as an anaesthetic but collapsed under it and was returned to bed. Two days later he was given ether, and although the blood pressure rose to 300/140 in an

hour a tumour was successfully removed from his right adrenal.

A tumour may be suspected from its symptoms, and it may be palpable on bimanual examination in the renal area. An excretion pyelogram may be of help in making a diagnosis. If the tumour is pressing the kidney downwards this may show on the *x*-ray photograph, or the kidney may be rotated in such a way that the ureter is kinked and a hydronephrosis results.

Paroxysmal hypertension may be due to other conditions which must be excluded in making a differential diagnosis.

1. Uraemia.
2. Subacute meningococcal meningitis.
3. Angina pectoris.
4. Rheumatic heart disease.
5. Carcinoma of the oesophagus and lymphosarcoma of the mediastinum causing pressure on the vagus.

It was suggested by Belt and Powell[2] that the typical symptoms of a tumour might occur and yet there might be no tumour present. Under these circumstances they suggest that there might be a condition of hyperchromaffinism analogous to a hyperthyroidism.

Case Report

The case I wish to place on record presented very definite attacks of hypertension associated with coma.

A female aged 19 was quite well until April, 1934, when she had a sore throat and occasional headaches. On April 19th she fainted on the way home from work and was put to bed, where she gradually became unconscious. She remained comatose for a week and was eventually brought round by venesection. During this attack her blood pressure was 218/140. Lumbar puncture showed the cerebro-spinal fluid to be normal but under a considerably increased pressure. The urine contained albumin in large amount, sugar, and acetone. The blood sugar estimation was normal and the blood urea 31.4 mg. N per 100 c.cm. During this period she was incontinent and had several convulsions. In May, 1934, her urine contained a trace of albumin and her blood pressure was 170/130. Since that time she has continued to have attacks of headache and vomiting about once a fortnight. The attacks last about four days. Menstruation is normal.

She was admitted to hospital on March 2nd, 1935, and her blood pressure was 200/130. There was no albumin or sugar in the urine. On March 8th her abdomen was opened under ether anaesthesia after giving avertin as a basal anaesthetic in a dose of 0.08 gram per kilo of body weight; both adrenals appeared to be normal; and, on the supposition that the case might be one of hyperchromaffinism, the left one was removed. She gave no real cause for anxiety during the operation but her convalescence was stormy for the first few days. Her blood pressure rose to 260/180 and she had a convulsion on the night following the operation. Her condition gradually improved and a fortnight later her blood pressure was 175/120. She had one attack of headache and vomiting in April and a slight attack in July. Otherwise she has been free from attacks and has gained seven pounds in weight. She has not returned to work and her blood pressure is now 216/144.

The pathological report on the left adrenal is that the capsule contains an unusual amount of unstriped muscle and that the adrenal vein is enormously thick-walled. There is no other abnormality in the gland.

Discussion

The case may be claimed as a partial success in that the paroxysms of hypertension have been relieved. The patient falls into the second category of Laubry and Bernai[4] as she has a permanent rise of blood pressure. This rise might be due to the late effects of the hyperchromaffinism which would cause hypertrophy of the heart and thickening of the blood vessels, but there is no evidence of either of these conditions. Physical examination shows a strongly acting heart but no obvious enlargement, and *x*-ray confirms this. There is no appreciable thickening of the radial artery. The rise in blood pressure is due presumably to the presence of a pressor substance in the circulation, either adrenaline or more probably an abnormal secretion from the adrenal in the form of a chemical precursor of adrenaline.

Further removal of part of the right adrenal has been considered and would seem to be logical. It has not been done because operative interference with part of the gland may lead to thrombosis of the vein and a resulting infarct of the gland itself, a grave risk in the presence of only one gland. She is being given deep *x*-ray therapy to the right adrenal and says she is definitely better as a result of this treatment.

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Clinical Memoranda

Evipan Sodium Treatment of Ether Convulsions

A female patient, aged 5 years, was admitted to the Manchester Jewish Hospital on March 20th suffering from acute mastoiditis of the left side. The child was extremely toxic in appearance, had a temperature of 103° F., a pulse rate of 174 per minute, and respirations were 32 per minute. Premedication consisted of an injection of atropine sulphate (1/100 grain).

ANAESTHESIA

Anaesthesia was induced rapidly by the ethyl chloride–ether sequence, using an Ogston type of inhaler, and was maintained with Shipway's apparatus without heating the vapour. During induction two convulsive spasms were noticed, but these passed off with deeper anaesthesia. A simple Schwartze operation was performed, and the dura of the posterior fossa and lateral sinus was found to be covered with septic granulation tissue. The lateral sinus was incised, and a blood clot floated out; free bleeding was established from both ends of the divided sinus. The sinus was packed and the operation hurriedly completed.

While the bone was being chiselled slight twitchings of the hands and face became apparent. These rapidly increased in violence and distribution until the whole body musculature became involved, it being found necessary to hold the patient down on the table. The administration of the anaesthetic was stopped immediately and an oxygen-carbon-dioxide, 5 per cent., mixture substituted. The waterproof coverings and blanket were removed from the patient. Compression of the carotid arteries, raising the patient's head, and cold sponging had no effect on the condition. The pulse rate was above 200 per minute and respirations were extremely rapid and shallow.

Evipan sodium solution was then injected into one of the veins in the antecubital fossa, and the convulsions began to subside after rapidly introducing 1½ c.cm. A further 1½ c.cm. was injected more slowly, after which the convulsions ceased entirely. The wound was dressed and the patient returned to bed, the foot of which was raised on blocks. The administration of the oxygen-carbon-dioxide mixture was continued in the ward to expedite de-etherization. The pulse became progressively slower and fuller as the normal reflexes returned. The child was able to answer to her name one hour after her return to bed, but was drowsy for several hours. Since then the patient has made an uneventful recovery.

COMMENTARY

This case of extremely severe ether convulsions was completely and rapidly controlled by intravenous evipan sodium after all other suggested lines of treatment had

failed. Intravenous nembutal, which has been used with good result in this type of case, is less satisfactory, because of the accurate dosage and slow rate of administration demanded; also it is contraindicated in young children, the very type of patient in whom ether convulsions most commonly occur.

I am indebted to Mr. V. F. Lambert for permission to publish this case.

T. H. CHADWICK, M.B., Ch.B., D.A.,
Honorary Anaesthetist, Manchester Jewish Hospital.

Manchester.

Delayed Haemorrhage from a Ruptured Spleen

The following case is of interest in showing how severe delayed haemorrhage may follow rupture of the spleen after as long a period as seven days, even when the initial haemorrhage was only very slight or intracapsular. It is said that in these cases the initial bleeding is small in amount, partly by reason of lowering of the blood pressure from shock and partly from the retraction of the vessel walls and clotting at the site of rupture. Some, however, maintain that the capsule of the spleen is not primarily ruptured, but that it is on rupture of this that the delayed haemorrhage takes place.

CASE HISTORY

The patient, a young woman aged 19, was quite well until July 15th, 1935, when she fell down a flight of wooden stairs and—as she said—twisted herself and fell on her left side. Her doctor suspected a fracture of the lower left ribs, and applied strapping. The patient appeared rather shocked, but showed no signs of haemorrhage; rest in bed was ordered. The patient stayed in bed for the next few days, owing to weakness, some pain in the upper abdomen, and inability to stand straight without severe pain. On July 21st (six days later), feeling much improved, she sat up in a chair for a few hours. The next day, at about 3 p.m., she suddenly became very faint, ill, and sick, with pain in the left upper abdomen and left shoulder. Severe concealed haemorrhage was diagnosed, probably from a ruptured spleen.

She was admitted to the Swindon and North Wilts Victoria Hospital at 6 p.m. in a collapsed condition, with a pulse of 144 (volume very poor), a temperature of 99.6° F., and a respiration rate of 28. She was pale, and showed all the signs of severe haemorrhage. There was tenderness over the splenic area; the presence of fluid in the peritoneal cavity was indicated by a fluid thrill and shifting dullness. From her history there was no suggestion of a ruptured ectopic gestation, which her clinical picture rather simulated.

Immediate operation was decided upon, and was performed by Mr. J. Ewart Schofield. The patient was anaesthetized with open ether. A high left paramedian incision was made. On opening the peritoneum there was a gush of blood, and the cavity was found to contain about two pints. The spleen was identified with some difficulty, and a rupture was felt in the anterior surface in the line of the ribs. The pedicle was found to be short and friable. On account of this it was impossible to mobilize the spleen to such an extent as to deliver it through the wound. Moreover, owing to this shortness, a portion of the tail of the pancreas had to be included in the ligatures, of which a number were considered advisable for safety. The abdomen was then swabbed free of blood and examined for further bleeding. The wound was closed without drainage. Before closure of the wound, owing to the patient's condition, a blood transfusion was started and twenty ounces of defibrinated blood were given through a cannula into the median basilic vein by the "tube-and-funnel" method. This cannula was stitched in, and the patient returned to the ward with a pulse rate of 130, volume very weak but improving. In the ward rectal salines were given, and continued four-hourly, also continuous drip intravenous saline injections throughout the night, two and a half pints being administered in the next ten hours. When the patient became restless doses of 1/8 grain of morphine were given.

On July 23rd a further blood transfusion was performed by the drip method, twenty ounces being given over a period of three hours. The general condition now was much improved. The temperature was 101°, the pulse 130, and the respirations 28. Doses of 1/6 grain of morphine were injected when necessary. Next day the patient appeared very much improved; the cannula in the arm was removed, and the wound was sutured under a local anaesthetic. Owing to the rapidity of the pulse rate (124) digitaline nativelle, 1/600 grain, was ordered four-hourly, and large doses of iron were commenced. During the next few days her pulse still remained high, but dropped to 96; on the 31st (nine days after the operation) she complained of some pain in the lower left chest, and the temperature rose to 100.6°. On examination there was found to be a small pleural effusion on the left side, extending up to the lower border of the scapula; this was treated with local application of iodine as a counter-irritant. Lugol's iodine was given in doses of two minims three times a day, since hypertrophy of the thyroid gland occasionally follows severe anaemia.

On August 6th (fifteen days after the operation) the patient felt very well, and had a good colour. The pleural effusion was now less, although still present, the temperature rising to 99° in the evening. The pulse rate was 96. A blood count showed: red cells, 4,150,000; haemoglobin, 54 per cent.; colour index, 0.66; and leucocytes, 13,900 per c.mm. As seen from this, the number of red cells was good, but the haemoglobin figure was still low; there was a leucocytosis which is commonly seen after injury to, or removal of, the normal spleen.

COMMENTARY

The following features of the case appear to be of special interest: (1) The suddenness and severity of delayed haemorrhage. (2) The difficulty encountered in ligaturing the pedicle, especially due to the friability. (3) The immediate improvement on ligaturing the pedicle of the spleen. (4) The value of continuous intravenous drip saline and drip blood transfusion. (5) The rapidity of the return of the blood count to normal. (6) The occurrence of a left pleural effusion. (7) The non-digestion of the wound by enzymes after injury to the tail of the pancreas.

R. A. LOVATT-WENGER, M.R.C.S., L.R.C.P.,
R.M.O., Swindon and North Wilts Victoria Hospital.

Swindon.

Delay in Second Stage of Labour Caused by Pessary

The following report of a rather unusual case may be of interest to readers of the *Journal*.

The patient was a woman 40 years of age, who had had twelve previous normal pregnancies and one miscarriage. The date of her last menstrual period was not known. The extreme obesity of the abdomen made palpation very difficult, but the fundus appeared to be at full-time level. The patient said she had been having strong pains for two days, and was worried at the length of the labour.

The fingers, when inserted into the vagina, came in contact with a short, hard body, which for a moment was thought to be the foetal chin. Further examination, however, revealed that this structure did not protrude through the cervix but was continuous around it, lying in the vault of the vagina. It was, indeed, a large vulcanite pessary, through which the swollen and oedematous cervix protruded. All but a small anterior part of the pessary was very difficult to palpate. It was with this part that the fingers had first come in contact. The cervix was as fully dilated as the ring would permit, and the membranes and a considerable caput succedaneum bulged through the pessary.

With considerable difficulty the pessary was removed, and a moment or two later the membranes ruptured. A live male child was born within half an hour. The puerperium was uneventful.

The pessary was circular with an external diameter of 3.7 inches. It had been inserted when she was three months pregnant by a dispensary surgeon, but she was ignorant of its existence.

W. GRAY, M.B.,
R.M.O., Eastern District Hospital, Glasgow.

Reviews

THE YEAR BOOK OF OBSTETRICS AND GYNAECOLOGY, 1935

The work with this title is an excellent publication.[1] As a collection of obstetrical and gynaecological extracts from the literature of the year it stands by itself, and it has justly gained a steadily increasing popularity on the American continent. In this country it has already become a welcome yearly addition to our libraries, and it is certain of a still wider use when its merits become more widely known.

The editors are Dr. DEELEE and Dr. GREENHILL of Chicago, who deal with obstetrical and gynaecological subjects respectively. Both are men whose wide experience and interests make them specially suitable for the task of selecting and abstracting the important publications of the year. The majority of the papers dealt with are from American and British sources; but the more important Continental publications are also represented. The individual extracts are generous in size, and give the reader a good understanding of the original publications; they are accompanied by numerous well-chosen illustrations. The volume is thus much more than a mere catalogue of the literature of the year.

A special feature of the book is the free use made of editorial annotation. One in every four or five articles is commented upon in a manner which considerably enhances the value of the abstract in question. While praise is given when considered merited, criticism (constructive rather than destructive) is also freely used. Nor is DeLee averse to administering a mild reproof—"Never say 'never,' 'must,' 'always,' or 'absolutely'" is his laconic comment on one article. These annotations, by expressing the reactions of men already thoroughly versed in the theory and practice of their art, add greatly to the interest and value of the book.

In the latest volume sections of special interest are those dealing with Caesarean section, the new pharmacological discoveries concerning ergot and their clinical application, the injuries and diseases of the newborn child, and the treatment of the various varieties of vaginal infection. As is to be expected, a large portion of the gynaecological division is taken up with endocrine discoveries and their therapeutic application. We can thoroughly recommend this year book. To those who find it difficult to keep abreast of current literature it is invaluable; for those who do strive in this direction it affords an excellent means of refreshing the memory with extracts chosen intelligently from the more important publications of the year.

IMMUNITY IN TUBERCULOSIS

In his book Immunity in the Course of Tuberculosis[2] Dr. JEAN PARAF has raised what is perhaps the most important issue in regard to the disease. Why is it that the behaviour of tuberculosis is so different at different age periods and in different races? Why does one case do well and another badly, although both were equally severe at first? The factors underlying these differences are of fundamental importance, and amongst them "immunity," a new character acquired to a greater or less extent as a result of the infection and varying according to the numbers and virulence of the bacilli and the frequency of implantation, as well as according to the inherent power of the individual to react, must be given a leading place.

Paraf begins his study with a good summary of work on the immunity produced in animals through experimental infection. The main point of the numerous investigations cited is that the infected animal is always notably resistant to reinfection from outside, although the originally implanted disease still progresses, and sooner or later eventuates (at least in guinea-pigs and rabbits) in death. In these observations, too, the essential importance of the *amount* of infection, whether in the original inoculation or in the subsequent reinfections, comes clearly to light. But the facts recorded leave no room for doubt as to the reality of "immunity" as a factor in protection against reinfection. The author then passes on to a consideration of "immunity" and "allergy"; and it is to be noted that he uses the word "allergy" in the modern way as a name for the hypersensitivity to an antigen following its introduction into the body rather than in von Pirquet's sense of the term as a "changed reaction" including both specific sensitivity and immunity. In these circumstances it is inevitable that Paraf's views should share some of the general lack of clarity which has followed a faulty use of what was originally a wide clinical rather than a restricted immunological concept. He arrives, however, at the view, already expressed by several reliable workers, that "immunity can exist without allergy and allergy without immunity"; and thus confirms the ideas so well established by the experiments of A. R. Rich and his colleagues at Baltimore, to which, however, Paraf does not refer.

Turning to the much more difficult problem of immunity in the course of human tuberculosis, the author admits freely that the search for humoral antibodies as evidence of immunity is useless; that there is no such thing as the transmission of "passive" immunity by the inoculation of blood or serum from immune animals or persons to unprotected individuals; and that the efforts at specific immunotherapy have, so far, met with a very restricted, if any, success. He is interesting about tuberculin therapy. "Léon Bernard," he writes, "held that tuberculin is the remedy for spontaneously curable forms of tuberculosis." "In the light of the knowledge now acquired on immunity," he adds, "it would be more correct to say that tuberculin is the remedy for cases possessing a marked degree of allergy." He fully accepts the implications of his theory, and agrees that this necessary hypersensitivity may involve danger through focal reactions in certain forms of the disease. It is in this risk, in fact, that he finds the explanation of the unsuitability of tuberculin as a treatment for pulmonary cases. He advocates its use in those strictly localized forms of tuberculosis in which pronounced hypersensitivity to tuberculosis goes with an almost complete separation of the lesions from the general circulation—namely, tuberculous adenitis, eye affections, and shut-off lesions in the uro-genital tract.

His chapter on B.C.G. is especially worth reading as one of the best recent appreciations of the problem. He takes the view that the general utility of the method is now established within certain limits, that the vaccine is quite innocuous, that the immunity conferred by the oral administration is far from regular, varying from almost *nil* to considerable protection, and he therefore prefers the subcutaneous method so strongly advocated by Weil-Hallé. He remarks on the great variation of efficiency in experimental results according to the animals employed: solid immunity in calves, little or no effect beyond occasional prolongation of life in guinea-pigs and rabbits. Curiously enough, he makes no

[1] *The 1935 Year Book of Obstetrics and Gynecology.* Edited by Joseph B. DeLee, A.M., M.D., and J. P. Greenhill, B.S., M.D., F.A.C.S. Chicago: Year Book Publishers, Inc.; London: H. K. Lewis and Co., Ltd. 1936. (Pp. 688; 97 figures. 2.50 dollars or 10s. 6d., postage 6d.)

[2] *L'Immunité au Cours de la Tuberculose. Etude Expérimentale et Clinique.* By Jean Paraf. Paris: Masson et Cie. 1935. (Pp. 140. 30 fr.)

reference to the important work of A. Stanley Griffith and Buxton in this connexion.

Distinction is lent to Paraf's little book by the fact that he himself has done so much original work on the subject of immunity in tuberculosis. The volume is strongly commended to all those interested in the subject.

A PRIMER OF SURGICAL HANDICRAFT

In the preface to *Elementary Surgical Handicraft*,[3] the author, Mr. J. RENFREW WHITE, says: "Skill in the art of surgery consists in the first analysis of skill in a particular group of hand activities." The development of this skill should be an essential part of the training of a student throughout his undergraduate career. The author has therefore designed this book to explain to the student how these essential activities ought to be performed, and, to quote once more from the preface, "the scope of the volume has been purposely limited to those procedures which a student should master before being called upon actually to take part in the treatment of patients." More than one-half of the two hundred and fifty pages is taken up with a complete dissertation on the art of bandaging, every conceivable bandage for every possible contingency being faithfully described and illustrated. The industry of the author in this regard is highly commendable, but we must confess to a feeling of pity for anyone who has never been inside a casualty room who tries to learn bandaging from this or any other book. It has always been something of a puzzle why a comparatively simple and common-sense procedure should be promoted to a science. The art of getting a dressing to cover a given area of the patient's anatomy and ensuring that it will stick there can only be learnt by practice, and a very little practice generally ensures quite a high degree of proficiency. Too much elaboration is only likely to cause confusion.

The remaining chapters deal with the control of haemorrhage in emergency and during operations, and knots, ligatures, and sutures, including their preparation and sterilization. Here again, without in any way wishing to be too critical, we find it difficult to see how a description of the methods of suturing in an intestinal anastomosis is going to convey much to the mind of one who has never seen an operation performed—yet, to refer to the preface already quoted above, it is to such that the book is addressed. Still less obvious appears the reason for including full directions for the sterilization of suture material in an elementary book for students who have never been inside a ward. The author has done his work well, the descriptions are good and the illustrations excellent, but we doubt whether this book will appeal much to those for whom it has been written.

MECHANICS OF LOCOMOTION

Throughout his book the *Mechanics of Normal and Pathological Locomotion in Man*[4] Professor ARTHUR STEINDLER has kept in mind the title of his thesis, and has refrained from wandering into the realm of therapeutics. The result is that the work as a whole is one of scientific interest rather than of clinical value. On the other hand his excursions into physics and mathematics will be found difficult to those who have forgotten much of what is included in the "preliminary subjects" in the medical curriculum of this country. A large part of the text deals with pure anatomy and with the physiology of movement, a knowledge which might be taken for granted if, as is to be presumed, the book is intended for advanced post-graduate use. Still, even under these headings, there may be found up-to-date information that is not commonly found elsewhere; for example, the importance of the mid-carpal joint in the movement of dorsiflexion of the hand is duly emphasized. Another large part of the book is devoted to considerations that have little or nothing to do with locomotion, save very remotely. Four full chapters are concerned exclusively with the upper extremity. Indeed, it is not until we reach Chapter XXVII that we find the last four chapters devoted to the mechanics of the human gait, while the pathomechanics occupy less than twenty pages.

The general scheme of the book is to divide it into two main parts, the general and the special mechanics of locomotion; but under the second heading there is a subheading—relatively very short—entitled "The Mechanics of the Human Gait." The first section deals with a variety of theses, amongst others being the centre of gravity, the physical properties of bone, fatigue, and recovery. Much of it relates solely to muscle—dynamics, pathodynamics, electro-physical analysis, and co-ordination. The second section follows a more or less uniform pattern. The spine is considered first from an anatomical point of view, then come the dynamics and pathomechanics of spine, pelvis, chest, and abdomen. Thereafter each joint of both extremities—even to the finger-joints and the muscles that control them—is taken in turn, and is discussed from the point of view of morphology, statics, dynamics, and pathodynamics. The last is even made to include fractures and dislocations. A short subsection is largely concerned with various graphic analyses of the human gait.

As a scientific monograph, and as a work of reference, there is no rival on this theme, and Professor Steindler is to be congratulated on the result of the labour that has obviously been spent upon it. We feel doubtful, however, how far this labour will be rewarded, because the number of medical men and women who will read—we had almost said "wade through"—the whole book as a pure scientific study, with so very slight clinical application or guidance, cannot be great. The publishers are to be congratulated on the general make-up of the book, and the very numerous illustrations have been reproduced with uniform perfection.

HISTORY OF PUBLIC HEALTH IN GERMANY

Dr. ALFONS FISCHER'S History of Public Health in Germany[5] is an elaborate work—nothing less than an encyclopaedic treatise on the subject from the commencement of German civilization to the foundation of the Imperial Ministry of Health in the nineteenth century. The author has made use of all available documents and other data, both original ones and the materials gathered together and discussed by every author who has written on the history of medicine and hygiene so far as Germany and German civilization are concerned. On almost every page there are footnotes with references to the writings of such well-known authorities on the history of medicine as Haeser, Peters, Puschmann, Pagel, Neuburger, K. Baas, and, above all, Sudhoff.

The first volume embraces the period of the first seventeen centuries of our era, whilst the second volume includes the eighteenth and nineteenth centuries. Both volumes are well illustrated from woodcuts, engravings, manuscripts, portraits, etc.

The book is written and arranged very clearly, so that it is easy to read at almost any page at which either

[3] *Elementary Surgical Handicraft*. By J. Renfrew White, Ch.M., F.R.C.S., F.A.C.S. London: J. and A. Churchill Ltd. 1936. (Pp. 250; 243 figures. 8s. 6d.)

[4] *Mechanics of Normal and Pathological Locomotion in Man*. By Arthur Steindler, M.D., F.A.C.S. London: Baillière, Tindall and Cox. (Pp. 424; 453 figures. 36s.)

[5] *Geschichte des deutschen Gesundheitswesens*. By Dr. Med. Alfons Fischer. Two volumes. Berlin: Urban and Schwarzenberg. 1936. (Pp. 343 and 591; illustrated. Geb., RM. 20.)

volume is opened. But it also forms an invaluable work of reference to original sources and the writings of other authorities. No public or private library concerned with the history of medicine and public health, or even with the history of ethics and civilization, should be without it. At various parts of the book one meets with illuminating references to hygiene in connexion with religious teaching, the orders of monks and religious orders of knighthood, the problems of prostitution, alcoholism, clothing, mental disease, baths, schools, poverty and insufficient food, childbirth, and the great epidemic diseases. In the early sixteenth century, according to Sebastian Franck (compare vol. i, p. 203), in regard to alcoholism, it was said that more persons were "drowned" by the "glass" than in water. "Bacchus destroyed more lives than Mars and Pallas." A temperance order (the insignia of which are illustrated, vol. i, p. 264) was founded in the fifteenth century under the Emperor Frederick III, and other temperance orders were founded in the sixteenth century, but apparently they had little beneficial influence.

Notes on Books

We welcome the publication of a small and charmingly printed book, *Truants: The Story of Some who Deserted Medicine yet Triumphed* (Cambridge University Press, 3s. 6d.). It is based on the Linacre Lecture delivered by LORD MOYNIHAN at Cambridge on May 6th, of which an account appeared in these columns on May 9th (p. 943). The epilogue

> I have gathered a posie of other men's flowers
> And nothing but the thread that binds them is mine own

does less than justice to Lord Moynihan's deft handling of the material and his mastery of English words.

First published in 1927, *Physical Signs in Clinical Surgery*,[6] by HAMILTON BAILEY, has been reissued in a fifth edition. The author states that he has resisted the temptation to enlarge the book, but all the chapters have been revised and some new illustrations have been added. This excellent book has already received such a measure of praise from reviewers and such obvious welcome from readers that to extol it further would be a work of supererogation. Letterpress and illustrations together make the book one of the very best of its kind in the English language. The new edition is sure to be as popular as its predecessors have been with both teachers and taught.

The first volume of the forty-sixth series of *International Clinics*[7] is divided into three unequal parts, devoted respectively to medicine, surgery, and recent progress in medicine and surgery. Of the twelve medical papers mention may be made of those on fever in heart disease, by J. Murray Steele, who shows that fever accompanies non-infectious as well as infectious processes; the indications and dangers of sedatives and hypnotics, with special reference to the barbituric acid derivatives, by Soma Weiss, who states that the majority of toxic reactions result from lack of skill and knowledge; pulmonary embolism, by Donald J. Fuch and Lewis T. Bullock; secondary anaemia in infancy and childhood, by Kenneth D. Blackfan and Louis K. Diamond; treatment of general paresis with stovarsol, by A. Sézary and A. Barbe of Paris, who regard this method as simpler than that of malariotherapy and quite as satisfactory; a critical study of the circulatory system of the liver and the evolution of the syndrome of portal hypertension, by Samuel Weiss: and the early diagnosis and treatment of arteriosclerosis of the lower extremities in diabetes, by William H. Olmsted. The section on surgery consists of a single paper on meralgia paraesthetica, by Ferdinand C. Lee, who maintains that the disease is due to pressure on the lateral femoral cutaneous nerve in its fibrous canal beneath the inguinal ligament. The section on the recent progress of medicine consists of a review of phosphatasic activity and calcium and electrolyte metabolism by Abraham Cantarow. The section on the progress of surgery, by Donald C. Balfour, Howard K. Gray, and Hugh A. Stuart, deals with recent developments in anaesthesia, neurosurgery, thoracic and abdominal surgery, urology, and orthopaedics.

The tables of food values in the ninth edition of Dr. R. D. LAWRENCE'S *Diabetic Life* (J. and A. Churchill Ltd., 8s. 6d.) have been modified to accord with new analyses carried out at King's College Hospital. This has required changes throughout the whole book in the food values established in 1929. The production of protamine insulinate is discussed in this edition.

The second Rae Memorial Lecture, delivered this year under the auspices of the National Temperance League by Mr. W. MCADAM ECCLES, has been issued in pamphlet form, with the title *Progress and Problems*, by Richard J. James and Son, Ltd. (10, Ivy Lane, London, E.C.4), at the price of 6d.

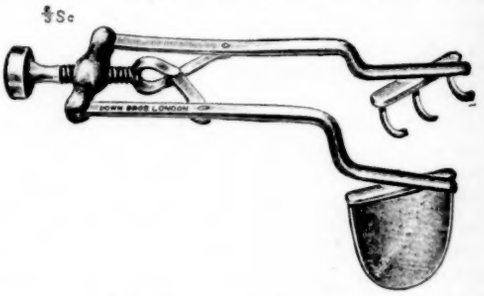
[6] *Demonstrations of Physical Signs in Clinical Surgery*. By Hamilton Bailey, F.R.C.S. Fifth edition. Bristol: J. Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd. (Pp. 287; 341 figures. 21s. net.)

[7] *International Clinics*, vol. i. Forty-sixth series, 1936. Edited by Louis Hamman, M.D. Philadelphia and London: J. B. Lippincott Company. (Four volumes, quarterly, 50s. net.)

Preparations and Appliances

FRONTO-ETHMOIDAL SELF-RETAINING RETRACTOR

Mr. C. A. HUTCHINSON (Bath) writes: Some months ago I caused a pair of special retractors (right- and left-sided) to be made for use in external operations on the fronto-ethmoidal region. The advantages claimed for them are: (1) that their adjustment can be very delicately controlled, so reducing the



risk of trauma to the orbital contents; (2) that, owing to their delicate structure, they do not obstruct the surgeon; (3) that they afford adequate exposure of the operative field; (4) that they are self-retaining and do not tend to "work out." The instruments were made for me by Messrs. Down Bros., 21 and 23, St. Thomas's Street, London, S.E.1, to whom I am indebted for their courtesy and help.

SPUMAN PREPARATIONS

Spuman preparations (introduced by Luitpold-Werk, Munich, and marketed by Medical Laboratories Ltd., 40, Pall Mall, S.W.1) are medicaments for foam therapy of vaginal, cervical, or urethral disorders. The medicaments are prepared as styli, which, when introduced into the vagina, produce a copious foam. This results in the active principle being spread over a large surface and being carried to all portions of the vagina. Spuman styli are prepared with a wide variety of active principles, such as zinc sulphate, ichthyol, proteinated silver, salicylic acid, lactic acid, etc. This form of medication is particularly recommended for all kinds of chronic vaginal inflammation. The vendors supply a pamphlet which contains an extensive list of references to articles in clinical literature and a number of favourable quotations from gynaecological textbooks.

MAGSYN

Magsyn (Allen and Hanburys Ltd.) is a combination of aspirin and magnesium. It is stated to produce less gastric disturbance than ordinary aspirin.

PREVENTION OF PUERPERAL SEPSIS

A CALL TO ACTION

BY

LEONARD COLEBROOK, M.B., B.S.

THE BERNHARD BARON MEMORIAL RESEARCH LABORATORIES, QUEEN CHARLOTTE'S HOSPITAL, LONDON

The tragic death of a friend's wife from puerperal fever moves me to submit some reflections which have long been simmering. The story of this death seems worth recording because it is typical of so many and because everything made it easy to get an exceptionally full and prompt investigation into the circumstances. She was a very healthy young woman (2-para), delivered with the utmost ease of a 5½-lb. baby at term. The confinement was in her own home, ideally situated, and adequate antenatal supervision had preceded it. There seemed to be the perfect setting for an absolutely normal parturition. On the third day there was fever and immediate admission to the Isolation Block of Queen Charlotte's Hospital. She did not appear to be very ill, but on the following day her blood grew forty colonies of haemolytic streptococci per c.cm.—that is, there were something like 250,000 cocci in the circulation. Seven times more during the sixteen days of her struggle for life the blood cultures showed similar or larger invasions of the blood stream. Necropsy was not performed, but there can be very little doubt—in view of past experience—that we should have found a large vein, ovarian or iliac, filled with disintegrating blood clot and teeming with countless millions of streptococci which were continually finding their way into the vena cava. Such a focus is presumably out of reach of any anti-bacterial agencies that the body itself or medical science can bring into operation. Happily such a development of a puerperal infection is not very common, but when it does occur—and to the wife of a friend—the question "How could the infection have been avoided?" becomes very insistent.

Search for Streptococci

Investigation in this case elicited the following data. Swabs from the mother's throat and nose yielded no haemolytic streptococci, and we are entitled to assume on the evidence of Dr. Hare's work (see summary in the *British Journal of Obstetrics*, April, 1936, p. 317) that this organism was not present in her birth canal before labour. The doctor's and the husband's throat and nose also contained no haemolytic streptococci, but the swab from the throat of the nurse yielded a growth of that organism (Group A), which proved to be serologically identical with that isolated from the patient's blood. How it was actually transmitted to the patient we cannot say. The nurse did not wear a mask while making her preparations for the delivery, nor during the very short first stage of labour before the arrival of the patient's doctor; and, although we have no reason to assume it, there is the possibility that her antiseptic toilet was not entirely adequate during that period or the forty-eight hours following delivery.

But here is the important point. She came straight to this maternity case from temporary duty in the children's ward of a small hospital where there were cases of tonsillitis.

We cannot state as a fact that the nurse acquired her throat streptococci from one of these cases of tonsillitis, but it may be regarded as very probable.

Averting Disaster

Assuming that it was so the disaster might presumably have been averted in three ways:

(*a*) If the matron of the nursing home to which the nurse belonged had realized the danger of her transfer from a hospital ward to a maternity case—and had prevented its happening.

(*b*) If, in view of the potential danger, the nurse had been taken off her temporary duty at the hospital a few days before the confinement was expected and had had a throat swab examined to make sure whether she was free from haemolytic streptococci.

(*c*) If the antiseptic precautions taken by the nurse before, during, and after delivery had been perfect at every point.

With regard to (*c*) it may be said that the network of anti-microbic precautions commonly employed is probably adequate nine times out of ten—perhaps forty-nine times out of fifty—but since "to err is human" and the best of us are sometimes off our guard, it must occasionally happen (and perhaps more than occasionally) during the long course of labour and the puerperium that some chance mistake is made, and that mistake lets the streptococci through the network. For that reason we cannot afford to trust entirely to antiseptic precautions and ignore other safeguards. Equally it would be foolish to belittle the importance of antiseptic precautions, because there is clear evidence that puerperal infections may be transmitted by an apparently healthy carrier who has not been in contact with any streptococcal infections and whom, therefore, there is no special reason to suspect. The remedy (*b*) is obviously difficult to carry out in practice, except for the rich, since the onset of labour cannot be predicted with certainty.

I am therefore driven to the conclusion that the fundamental mistake in the arrangements for this particular confinement was that the precaution (*a*) was not adopted. Neither the nurse herself nor presumably those who were responsible for her engagements, were alive to the fact that highly dangerous streptococci might be transferred from the hospital ward to the private maternity case by the temporary lodgement of these streptococci in the nurse's throat or nose.

Sources of Infection

Perhaps one can hardly blame them because, although the danger of transmitting septic infection from surgical wards, post-mortem rooms, etc., has been known since the days of Semmelweis, few have realized that inflammatory conditions of the throat and nose (tonsillitis, scarlet fever, antrum infection, otitis media, etc.) are just as dangerous and much more insidious sources of trouble, both in obstetrics and in surgery. Again, it has long been taught that septic infections are directly transmitted by means of the hands, or instruments, or clothing. Now we have abundant evidence that they are very frequently transmitted, not directly from the primary source, but from an intermediate source—the throat or nose of a healthy attendant. The most important of that evidence is to be found in Dr. Dora Colebrook's recent *Report on the Sources of Puerperal Infection* (No. 205 of the Medical Research Council's Special Report Series, published by H.M. Stationery Office, price 1s. 6d.). The laborious and critical investigation there recorded gives us proof *as complete as it is ever likely to be* with regard to the predominant danger of these throat- and nose-carried streptococci.

How does our present-day practice appear in the light of this new knowledge? It must be frankly admitted that all over the country and in every class of obstetric practice we are running risks similar to that which led to the disaster described above. In a London hospital not long ago several cases of puerperal fever occurred because a nurse had been permitted to come and go between the maternity wards and a medical ward in which there had been recurrent cases of scarlet fever. In scores of hospitals, I believe, nurses are transferred

from surgical and medical wards to maternity wards without any throat swab being taken to make sure that they have not become carriers of haemolytic streptococci. Maternity cases are being received every day into nursing homes which take also septic surgical cases. Women are being delivered every day in their own homes where there is a child with a discharging ear following otitis media, or a husband with tonsillitis or an infected wound. And medical men and midwives who have, or have recently had, sore throat, laryngitis, a "cold," influenza, or an antrum infection are very commonly dealing with maternity cases without any attempt being made to find out whether there is any danger of haemolytic streptococci being conveyed to these cases.

Application of Knowledge

All these things—and it would be easy to multiply instances—seem to me utterly wrong in view of the knowledge now available. The urgent problem then is—How are we to bring this knowledge quickly into effective application so that these inexcusable things no longer happen?

Surely the time has come for a much more vigorous and enlightened preventive policy? I would suggest that we need, in the first place, wisely directed propaganda to awaken the medical and nursing professions, public health authorities, and also the lay public to a "streptococcus-conscious" frame of mind. We need, perhaps still more, carefully thought out arrangements which will make it easy for private doctors and nurses, as well as hospitals and public health authorities, to take the necessary precautions. At present it is not made easy, and so the precautions are not taken even by those who understand the danger. In all the discussions that are taking place about the development of maternity services I hear of nothing directed towards this particular end—the prevention of these most easily preventable deaths and illnesses.

Doubtless the provision of better-trained doctors and midwives and improvement in economic conditions will have some indirect effect in the course of years, but they will not suffice to prevent the most serious kind of puerperal infections if we do not focus our attack upon the essential cause—the transmission of the infecting microbe to the susceptible mother.

Sane Propaganda

The suggestion of propaganda will, I know, arouse considerable opposition on the ground that knowledge of these unseen dangers must inevitably percolate through to expectant mothers and frighten the more timorous of them. Perhaps that cannot be altogether avoided, but surely our women as a whole have hardihood enough to learn from what quarters danger threatens them and to meet it by intelligent precautions. Dr. Brown's argument that he would not dream of wearing a mask for Mrs. Smith's confinement because she would say "Is there something the matter with you?" is understandable so long as the public is not allowed to know that there is a very real danger from the throat- and nose-carried streptococci. Why should they not be told of this just as they are told of the danger from tuberculous sputum or contaminated milk or road accidents?

By all means let us keep our propaganda sane, and so far as possible within the medical and nursing professions, but it is certain that the necessary precautions cannot be taken without the knowledge and co-operation of potential and expectant mothers.

To those who are concerned about unduly alarming the public I would suggest that each death in childbirth, or serious puerperal illness, must in itself have a very disquieting effect upon the group of women who hear of it. At a rough estimate there are some 18,000 such fatal or serious illnesses every year in England and Wales. Surely the personal knowledge of these 18,000 cases must make a deep impression upon a very large number of potential and expectant mothers, an impression much deeper than would be made by a carefully worded warning with regard to the possible sources of danger. Even personal knowledge is not necessary. An ante-natal officer has described to me the state of alarm among the patients of her clinic when the death in childbirth of Señorita Conchita Supervia was recently trumpeted throughout the country by the big headlines in the newspapers.

Practical Prevention

The practical arrangements which would be required to avert these dangers in all classes of maternity practice cannot be dealt with in any detail here. An outline of them was recently presented to the Congress of Obstetricians in Belfast, and will be published in a forthcoming issue of the *British Journal of Obstetrics*. It was suggested that we need:

(*a*) An organization of bacteriological services for detecting, *before they give rise to puerperal infection*, any potentially dangerous persons among those doing midwifery or in the household of the expectant woman—that is, those persons with inflammatory or catarrhal conditions of the respiratory tract due to the haemolytic streptococcus; for detecting at the earliest possible moment the cases of puerperal fever due to haemolytic streptococci, especially in maternity institutions; and for detecting a possible source of infection in such cases among the attendants, in order that they may not infect other patients.

(*b*) More provision for the immediate isolation of the streptococcus-infected puerperal fever cases when they occur.

(*c*) A definite policy of encouragement of certain types of maternity institutions and discouragement of others, according to the degree of safety from infection which each is judged to offer. Also perhaps, as part of this policy, the conferment of powers giving opportunity for stricter supervision of certain types of institution which are regarded as potentially dangerous.

(*d*) A definite policy with regard to instruction in the use of masks and the most effective antiseptic precautions.

Probably the adoption of some such positive practical measures all over the country would in itself constitute the most effective propaganda.

Wanted—A National Scheme

Pending the development of a national scheme for the provision of the necessary bacteriological services this laboratory has recently made arrangements for the examination of swabs sent in from public health authorities, hospitals, and private doctors or nurses with a view to the rapid detection of haemolytic streptococci in the throat, nose, or genital tract; and will also, when circumstances require it, ascertain whether the streptococci isolated belong to the specially dangerous Group A or not. The latter investigation, which is at present only practicable in the hands of those who have had a large experience of this kind of work, is often of great practical value—for example, when a midwife suspected of having transmitted an infection is suspended from duty. It is proposed to run this puerperal fever prevention service at the lowest possible cost in the hope that it may be widely used. Further particulars can be had on application.

Whatever view is taken as to the most appropriate preventive measures I hope it may soon be recognized that the majority of these occasional, yet all too frequent, disasters need not occur. Since the microbe is so peculiarly well adapted to the human organism midwifery will perhaps never be free from the threat of them, but there is already evidence that the threat can be successfully countered.

British Medical Journal

SATURDAY, JUNE 20th, 1936

DIET DURING PREGNANCY AND LACTATION

During the last few years the problem of maternal mortality and morbidity has caused no little concern both in medical and in lay circles, and not a few observers have sought to correlate this wastage of life with faulty nutrition. It is therefore opportune that Garry and Stiven[1] have attempted to assess the dietary requirements of the woman during pregnancy and lactation by reviewing the literature and in particular the results of the nutritional experiments on animals. They conclude that "any investigation into the causes of maternal morbidity and mortality should take into account the diet of the mothers." Mortality associated with childbirth may be classified thus: puerperal sepsis; haemorrhage; the toxaemias of pregnancy; the accidents of childbirth; and diseases aggravated by pregnancy.

It is reasonably certain that the only two of these categories which might be directly affected by diet are puerperal sepsis and the toxaemias of pregnancy. Some evidence has been advanced to suggest that the incidence of puerperal infections may be reduced by adding vitamin A to the diets of pregnant women, but the reports of more than one maternity hospital make it evident that childbed fever can be to all intents and purposes eliminated by good obstetrics. It follows that the only form of maternal morbidity and mortality which cannot be prevented by good midwifery and which may be due to dietetic factors is that associated with the toxaemias of pregnancy. The direct evidence in favour of this supposition is, as might be expected, scanty, but the effects of inadequate diet on the mother and on her offspring are shown to be manifold. When the problems of fertility, death of the foetus *in utero* and of the offspring in the first few days of life, and of lactation are considered, the evidence of the part played by diet is overwhelming and conclusive. In animals abortion or death and absorption of the foetus can be brought about by making the maternal diet deficient in any of the four vitamins A, B, C, or E. Moreover, "calcium deficiency in pigs is cumulative from litter to litter and from one generation to another, the number of pigs being born dead increasing very rapidly," and this is in accordance with the view "that a correlation may exist between calcium deficiency, prematurity, imperfect calcification, and birth trauma." This association between dietetic deficiencies and death of the foetus may be significant when it is remembered that in this country the toxaemias of pregnancy are the commonest "cause" of death of the child in the intrauterine and neonatal periods.

[1] *Nutrition Abstracts and Reviews*, April, 1936, p. 855.

It is a rather disconcerting fact that the dairy farmer knows more than the obstetrician about the food necessary to cause a good yield of milk. The lactating woman requires a higher intake of energy than the pregnant woman, for she expends from 350 to 700 calories a day on providing milk. In cows the protein intake would appear to be the most important limiting factor for lactation, although up to a point the protein may be provided at the expense of the animal's tissues. An abundant supply of fat of high quality is necessary to produce the best effects in lactation, and this cannot be supplied by the unsaturated fatty acids which have been shown to be essential to fertility. It has also been shown that free access to water increases the yield of milk in dairy cows. As might be expected, an adequate intake of calcium and phosphorus is essential, and in sows the second generation fed on a diet deficient in calcium are unable to suckle their second litter. Rats fed on a manganese-free diet failed to show any development of the mammae during pregnancy, while it has been shown that in some circumstances an increase of the iodine intake may increase the yield in cows. Successful lactation in rats is, moreover, dependent on the intake of the vitamin B complex and to a lesser extent on that of vitamin E. The mere quantity and quality of the milk are not, however, the sole factors to be considered. Its content of vitamin D may be increased by the administration of cod-liver oil, but the increase will only be sufficient to prevent the onset of, but not to cure established rickets in the offspring.

The authors give a table showing their estimations of the daily human requirements of the various foodstuffs during pregnancy and lactation, and with their estimates no well-informed person is likely seriously to disagree. When this table is compared with the average dietary in this country there is every reason to doubt whether one pregnant woman in ten ingests half the suggested amounts of minerals and vitamins. The authors conclude this valuable review in a most orthodox manner. "Mellanby suggests a diet including daily two pints of milk, two servings of green vegetables (cabbage, kale, spinach, or lettuce), one or two eggs, fresh fruit (apples or oranges), sea fish twice or thrice a week and liver once weekly, with the possible addition of cod-liver oil." The only criticism of such a diet is that it would cost two to three times the amount of money available to a large section of our population for the purchase of food.

HEREDITY AND DISEASE

The part played by heredity in many of the diseases of man is gradually receiving greater recognition both by the general public and by the medical profession, and we welcome the establishment of a bureau in London devoted to the collection of data bearing on this problem. It is strange that we have a more precise knowledge of the inheritance of defects of development and of normal characters in an obscure insect, the fruit-fly, than in man himself. In man, however, it is far more

difficult to get accurate material. Experiment is impossible, human families are small, and a single generation covers many years instead of a few weeks. No individual can amass in his lifetime enough material to solve any of the more important questions relating to human heredity, but every medical man must come across a certain number of families of which he can compile an accurate pedigree, and a general practitioner in a small town or country district is particularly well situated to get complete pedigrees of one or two families in which some defect or special liability to disease is present.

Our only hope of further progress is to collect pedigrees of all kinds, sort, and store them, and when enough material of any kind has been collected, subject it to expert analysis. The gathering of new material and abstracting what has been published already are the first objects of the Bureau of Human Heredity, but this must necessarily be a slow process, and quick and dramatic results must not be expected. The dissemination of the knowledge gained from its accumulated stores to public bodies and private individuals is the ultimate end which the council has in view. Some defects, such as cleido-cranial dysostosis, blue sclerotics and brittle bones, the facio-scapulo-humeral type of muscular dystrophy, acholuric jaundice, and multiple xanthomata of the skin, are often transmitted by direct descent from generation to generation, but not infrequently they affect only one member of a family in which they have not appeared before. Unfortunately we have little knowledge of the relative frequency of their occurrence in one member of a family or in many, because isolated cases are much less likely to be reported in medical literature. Pedigrees should therefore be sent to the Bureau without selection, for those families in which only a single member is affected are as important to a geneticist as the other more striking ones in which the defect appears in several generations. Other defects, such as achondroplasia, harelip and cleft palate, and ichthyosis simplex, may be transmitted by direct descent, but more often affect only one member of a family, and many careful and unselected pedigrees must be collected before their mode of inheritance can be elucidated.

Evidence is accumulating which shows that common diseases, such as peptic ulcer, high blood pressure, and pernicious anaemia are due in part to an inherited constitutional cause and in part to environmental factors. It seems probable that our greatest hope of preventing the onset of diseases of this kind lies in treating the inherited abnormality before symptoms of the disease itself have appeared. When we know how these disorders are inherited it should be possible to recognize which members of a family are likely to suffer in later life and to take the necessary precautions to prevent them. General practitioners, who come into contact with many members of a family over a long period, are the men most capable of advancing our knowledge of the genetics of these diseases. In the case of dominant conditions, which are transmitted by direct descent, pedigrees should be as complete as possible, and should include the age and sex of both normal and abnormal members and the stillbirths and miscarriages in each fraternity. It must not be thought, however, that incomplete pedigrees are valueless, and even those which are fragmentary will be welcome. The rarity of a condition is no criterion of its importance, and it is just as necessary to collect large numbers of pedigrees of common conditions as of rare ones. For in this way an unexpected excess of normal or of abnormal members, or an abnormal sex ratio, may be revealed and lead to interesting discoveries about their mode of inheritance.

It is insufficiently realized that conditions which affect only one member of a family or occur only in one fraternity may be hereditary. Many such conditions are Mendelian recessives. Pedigrees of such families should be accompanied, if possible, by a statement whether the parents were blood relations or not, and, if blood relations, the degree of consanguinity should be given. If the disorder is recessive and sufficiently rare, the percentage of cases occurring as a result of marriages between first cousins will be abnormally high, but there will be no increase in the consanguinity rate if the condition is acquired. This is the only way by which we can prove whether an abnormality such as anencephaly is due to unfavourable conditions during embryonic life or whether it is inherited, and a knowledge of aetiology is essential before preventive measures can be undertaken. It is a great honour that London should have been chosen by the International Federation of Eugenic Organizations as the centre for a Bureau of Human Heredity (its address is 115, Gower Street, W.C.1), and we hope that the appeal for data made by Professor Ruggles Gates in our issue of May 16th (p. 1018) will meet with a generous response, for its success depends very largely on the support it receives from the medical profession in this country.

THE MIDHURST REPORT

A few facts contained in the twenty-ninth annual medical report now issued from the King Edward VII Sanatorium, Midhurst,[1] are of general interest and deserve attention. Certain features of the institution must first be recalled: the well-trained resident and expert consulting staff, the adequate radiological and surgical facilities, and, above all, the strict selection made in the admission of patients, most of whom belong to professional or well-to-do classes. Thus one-third of the new cases had been examined by the medical superintendent before admission, and the remainder accepted only with a doctor's certificate and after inspection of their skiagrams if there was "the least doubt about suitability." Bearing in mind all these circumstances (and the fact that patients staying less than nine weeks are not considered in the report at all), it is disquieting to find that while 112 sputum-positive patients were admitted during the

[1] Copies may be obtained on application to the Medical Superintendent, King Edward VII Sanatorium, Midhurst, Sussex. (1s. post free.)

year no fewer than seventy were discharged (though many of them much improved) still sputum-positive. To the hygienist, at any rate, primarily concerned with the preventive aspect of tuberculosis, such a result is by no means satisfactory. Only fifty-three of the 201 tuberculous patients were considered arrested on discharge. Are these results to be attributed to our still inadequate methods of treating pulmonary tuberculosis, or to the patients' insistence on leaving before treatment is completed, for financial or other reasons? It would be of great interest to have this indicated in future reports. In this connexion it may be pointed out, too, that of the 201 tuberculous patients in only eighteen was artificial pneumothorax induced (attempted in twenty-four). Of the thirty tuberculous readmissions five were classified as arrested and seven as much improved (but still sputum-positive) on discharge; and this is considered in the report as proving that "routine treatment restores a considerable number [of readmissions] to health." Emphasis is laid on the importance of artificial pneumothorax as an "adjunct in the quicker healing" of tuberculous laryngitis; and the results at Midhurst are stated to "fully justify the increased use of sanocrysin," which is also given to thoracoplasty cases after operation in order to accelerate the fibrosis taking place. (This appears to be contrary to the opinion expressed by some authorities that sanocrysin therapy has an advantage over sanatorium treatment alone in that resolution of lesions is obtained with less resulting fibrosis.) In view of the recent discussions in favour of phrenic crush it is interesting to note that at Midhurst this operation was carried out three times during the year and phrenic evulsion twenty-four times. Finally, we would draw the attention of all tuberculosis workers to the following highly important statement: "We are continuing the practice of *x*-raying every patient on admission, after the first month, and, subsequently, every six weeks—or sooner should any untoward circumstance arise. We are convinced of the value of this method of regular and serial control." Included in the report are the results of an investigation with the capillary blood sedimentation test, which showed, among other things, that the proximity of the onset or cessation of menstruation has no pronounced effect on the sedimentation rate.

HYGIENE IN THE RAND MINES

The report for 1935 of the chief medical officer of the Central Mining-Rand Mines Group contains points of general interest. Dr. A. J. Orenstein states that there has been no increase in the accident rate, in spite of the in-coming of many new employees, a fact attributable in part at any rate to the introduction some years ago of a system of preliminary training. The morbidity rate of pulmonary tuberculosis in the year under review was the lowest on record, having fallen from 11.78 per 1,000 in 1915 to 2.23. This now compares favourably with the figures for the general population of most countries. Dr. Orenstein attributes this chiefly to the all-round improvement in the hygiene of the workers and to the more searching medical examination now undertaken on their engagement and periodically thereafter. A comparison has been made of the incidence of enteric fever in mines where water-borne sewage disposal is in use, and in those where buckets are still employed—the rate per 1,000 in the first case being 2.65, and in the second 3.99. In both there were epidemic outbreaks of enteric fever during 1935, but in the first the incidence was about one-third lower than in the second. Had the incidence in the bucket sewage disposal group of mines been as low as in the others, there would have been 888 fewer cases. In 1935 enteric deaths constituted 5.16 per cent. of the total mortality. Prophylactic inoculation with Grasset's endotoxoid vaccine seems to be at least as efficacious as T.A.B., and it has the notable advantage of producing hardly any reaction. The South African Institute for Medical Research is continuing its investigation of food with special reference to the anti-scorbutic vitamin content; the evidence points to the possible existence of a "subscorbutic" state, which might unfavourably affect the health of the natives, especially as regards the healing of wounds and the course of infectious diseases. Meningitis was more common in 1935 than in the preceding year, but the case mortality rate was much lower and the recoveries more numerous. The efficacy of anti-meningococcus serum treatment varied much at different times and in different places, and it is admitted that the problem of specific treatment of this disease is still unsolved.

CHILDREN'S MORAL WELFARE

In a recent annotation[1] we commented on the valuable work of the St. Pancras and Holborn Committee for Children's Moral Welfare. In 1932 the Association for Moral and Social Hygiene called a conference on the subject of sexual offences against children, and this conference appointed a joint committee to consider the subject. The committee is working to put into effect the recommendations of the Departmental Committee on Sexual Offences against Young People—recommendations which are already eleven years old but which have so far been ignored. They recommend two new forms of sentence—detention for from two to four years, and prolonged detention for from five to ten years—as an alternative to the imprisonment or penal servitude at present applicable to sexual offenders against children and young girls. It is anticipated that when the court, in its discretion, sentences the prisoner to detention, he will receive medical investigation and will be released on licence if there is a reasonable probability that he will in future refrain from crime. The Joint Committee of the Association for Moral and Social Hygiene further urges mental examination and report on all cases of indecent exposure and all sexual offenders previously found guilty of an indecent offence. It has published two memoranda: one for magistrates, including recommendations for the conduct of the cases and the reduction of strain on the children concerned; and the other, an article by Dr. R. D. Gillespie on the need for medical mental examination. This latter memorandum divides sexual offenders with abnormal mentality into three groups: those suffering from definite mental disease who are certifiable and who are now usually recognized; those suffering from

[1] *British Medical Journal*, March 7th, 1936, p. 484.

lesser degrees of mental instability, who are very difficult to define in a legal sense and who would best be treated by some kind of detention or indeterminate sentence to be served in a special institution or colony with pronounced emphasis on character training ; and those in whom sexual offences take the form of a compulsion. These last are suffering from a psychoneurosis and are essentially amenable to psychotherapy. Dr. Gillespie emphasizes that the medical aim is not to exculpate these offenders, but to obtain more control over them by legal means while they are undergoing treatment. The lawyer always finds it difficult to realize that when a doctor " treats " a person for a criminal offence he is not minimizing guilt. It is greatly to be desired from every point of view that doctors, lawyers, and legislators may come to some agreement on this very difficult subject. The damage done to young people by a few persons who cannot be held altogether responsible—because no amount of punishment acts as a deterrent—is a lamentable feature of modern life.

PYRETHRUM DERMATITIS

The use of pyrethrum powder or its extracts as insecticides in house, garden, and orchard has increased vastly during the last twenty years, the annual consumption all the world over standing nowadays at perhaps fifteen thousand tons. The commercial powder consists of the dried and pulverized flowers of a small daisy-like chrysanthemum, *C. cinerariaefolium*, grown mostly in Japan and Dalmatia, and more recently also in the uplands of Kenya Colony. Its toxic substances, known as pyrethrins, are two in number, and occur in the achenes or fruits at the base of the yellow disk-florets of the composite flower. Their chemistry and constitution were worked out over twenty years ago by Staudinger and Ruzicka, and they may be briefly described as highly unsaturated esters formed by the combination of a complex alcohol, pyrethrolone, with two complex chrysanthemum acids. The pyrethrins are very poisonous to insects and cold-blooded animals of all sorts, being described rather vaguely as neuromuscular or nerve poisons, and causing degeneration of the nerve cells of the nerve ganglia. Warm-blooded animals, on the other hand, are relatively immune to the pyrethrins, however administered, and it is denied[1] that any deaths from pyrethrum poisoning have occurred in human beings. Pyrethrum dermatitis, however, in susceptible persons and particularly during the hot weather, has long been recognized in many parts of the world. In Japan and Dalmatia the flowering season of the pyrethrum plant lasts for no more than two or three weeks, so that the workers who pick and handle the crop are exposed to its possibly harmful effects for only a short period of time. In Kenya Colony, on the other hand, thanks to the climatic advantages it possesses, the flowering season may go on for ten months out of the twelve, with the result that pyrethrum rashes are now becoming an important problem to the growers of the plant. The symptoms and treatment of this dermatitis are described in detail by Tonking[2] ; the cases occur among both Europeans and Africans who handle pyrethrum, and may all be classified as varying degrees of dermatitis venenata with intense pruritus. The patient often takes a long time in acquiring the dermatitis, perhaps two or three years ; once the rash has started, continued contact with pyrethrum renders the victim more, rather than less, sensitive to its action. Beginning as an erythema with pruritus, the rash is likely to progress to a papular dermatitis with desquamation and slow healing of the papules ; these symptoms will clear up in a few days if the patient keeps away from the pyrethrum. In other severer instances a vesicular or even a bullous dermatitis is produced. The worst cases are those in which the patient is abnormally sensitive and shows a toxic idiopathy to pyrethrum ; here the eyes and nose itch and run, itching patches appear all over the body and first on the exposed parts, and an erythematous rash develops, followed by peeling and the formation of painful cracks or fissures in the natural flexures of the skin and elsewhere. All these symptoms are aggravated by sweating or by exposure to the sun, and, of course, by any fresh exposure to pyrethrum. Treatment consists in limiting the patient's contact with pyrethrum, scrupulous personal cleanliness, bathing the affected areas with a weak alkaline lotion, and covering exposed portions of the body with a protective ointment. In the worst cases, those with allergic symptoms, it is essential that the patient should live outside the pyrethrum districts, unless desensitization by injections of an extract of the flowers and pollen should prove to be effective.

[1] Gnadinger, C. B.: *Pyrethrum Flowers*, Minneapolis, 1933.
[2] Tonking, H. D.: "Pyrethrum Dermatitis in Kenya," *East African Med. Journ.*, Nairobi, April, 1926.

HENRI VAQUEZ

Professor Henri Vaquez, whose death we announced some weeks ago, was born on April 27th, 1860, in Paris, where he received his medical training and had the good fortune to be one of Potain's favourite pupils. He qualified in 1890, and five years later was appointed physician to the Paris hospitals, first being attached to the Hôpital St. Antoine and afterwards to the Hôpital de la Pitié, where he was made professor of clinical therapeutics in 1918. In the same year Vaquez was elected a member of the Académie de Médecine, and was subsequently transferred to the chair of clinical medicine, soon attaining a well-merited eminence as a haematologist, cardiologist, and therapeutist. In a paper published in the *Bulletin Médical* of 1892 he described, under the title of " A Special Form of Cyanosis Accompanied by Excessive and Persistent Hyperglobulia," the condition known as erythraemia, or Vaquez's disease. It was described independently in the *American Journal of Medical Sciences* in 1903 by Osler in a paper entitled "Chronic Cyanosis with Polycythaemia and Enlarged Spleen: A New Clinical Entity," but Osler soon recognized Vaquez's priority, which he acknowledged in a paper in the *Lancet* of 1908. Vaquez's chief work, however, was in connexion with the cardiovascular system. He first devoted his attention to the study of hypertension ; this he attributed primarily to hyperactivity of the chromaffin system, which was followed later by the renal and vascular lesions hitherto regarded as the substratum of hypertension. Under the name of " sphygmo-signal " he constructed an apparatus for the clinical measurement of the blood pressure, and subsequently,

in collaboration with Laubry, he introduced an auscultatory method by an apparatus which he named "sphygmotensiophone." Vaquez's interest in the graphic method in cardiology is shown by the fact that he was the first physician in France to have Einthoven's instrument installed in his hospital, and by the important place which it occupied in his work on diseases of the heart and other writings. He soon recognized the importance of radiological examination of the heart, and in 1920 published the results of his experience in a work written in collaboration with E. Bordet, of which a second edition appeared in 1928. The value of surgical intervention in cardiac disease, especially angina pectoris and mitral stenosis, was readily acknowledged by him. He was also one of the first to have splenectomy performed for congenital haemolytic jaundice. In 1908, in collaboration with Laubry, Aubertin, and Heitz, Vaquez founded the *Archives des Maladies du Cœur, des Vaisseaux, et du Sang*; the first journal of its kind, of which he remained the editor-in-chief until his death. As regards his work as a therapeutist, reference should be made to his *L'Hygiène des Maladies du Cœur* (1899), *Précis de Thérapeutique* (1901), and *Le Traitement des Anémies* (1914), as well as to his foundation of the welfare scheme "L'Aide aux Cardiaques," which was rendered possible by the generosity of an American patient named Mrs. Dick. Vaquez was a man of wide culture, and had many friends in the world of art, literature, and music, as well as of medicine. He travelled extensively in Europe and South America. Among his numerous patients of mark were Georges Clemenceau and Anatole France, as well as several royal personages. His work was well known to physicians in this country, where he was elected an honorary member of the Section of Medicine of the Royal Society of Medicine in 1920.

MEDICINE AND THE PRESS

For good and obvious reasons most medical men dislike receiving publicity in the lay press, especially when their names are associated with the publication of details of a startling or unusual case. We often print disclaimers from medical men protesting against the publicity, and stating that comment in the lay press appeared without their knowledge or consent. That some harm may be done, and probably is done, by the undue prominence given in a daily newspaper to matters that may arouse fear cannot be doubted. The alarmist statements that have appeared about maternal mortality is a case in point. Another is the reports on cardiac resuscitation. But here, one might imagine, the public is as likely to pay attention to the skill of the doctor in bringing back the dead to life as to the risks of anaesthesia. It has been suggested that the Press should by some means or other be discouraged from "lifting stories" from medical journals, that some control should be exercised. But we are still a democratic country and any attempt to muzzle the Press would rightly be resisted. Matters of health and disease are naturally of great interest to the man and woman in the street, and the lay public would become very suspicious of the medical profession if the latter tried to suppress news and to keep its publications secret. The public is suspicious enough as it is, and the strength of the profession lies in the fact that it is ready to take the public into its confidence, that it does not—as do many unqualified healers—pretend to powers which it has not. Publicity, in the more responsible newspapers at all events, is even welcomed, and we should recognize that in this way a useful service is being offered. The daily paper has to give its readers information that it thinks will be of interest; the interpretation of what is of interest depends upon the particular public the particular paper is trying to reach; the method of presentation depends upon the standard of journalism thought suitable by this or that periodical; the standard of taste and education of the average reader of the popular daily is not likely to be as high as that of the reader of the *Times* or the *Manchester Guardian*. What Ibsen called the damned compact majority is probably more liable to error than the informed minority. These things being so, it is perhaps idle to raise objection. A more satisfactory method of abolishing the evil of misrepresentation and vulgar exploitation of medical news would be by way of co-operation instead of by recrimination. A medical news service under the control of a responsible body might be welcomed by the lay press, and in this way valuable health propaganda could be conducted to the benefit of the community at large. If this co-operation were forthcoming we believe that a certain measure of control of news would be accepted—of news, that is, which would do harm rather than good. The difficulty of providing such a service is another matter.

TUBERCULOUS MENINGITIS IN AN INFANT VACCINATED WITH B.C.G.

The difficulty of assessing the value of B.C.G. vaccination is considerable. Adequate statistical data are so far lacking, and attention has therefore to be paid to the results of clinical observations. In this connexion the case reported by Dr. G. Blechmann and Dr. R. Mély[1] of tuberculous meningitis in an infant vaccinated with B.C.G. is well worth recording. Briefly, the infant was vaccinated by the mouth during the first ten days of life. It was removed from its family for six weeks and was then brought back, when it was in contact with a mother on whom an artificial pneumothorax had been induced about two years previously. At the age of four and a half months the infant developed tuberculous meningitis and died in a few days. This case is of more than clinical interest. It does not stand alone, but is one of many of a similar nature that have already been recorded. Moreover, the discussion to which an account of the case gave rise before the Société Médicale des Hôpitaux de Paris, representing as it did informed clinical opinion in the actual birthplace of B.C.G., is peculiarly enlightening. Among those who took part were M. Jean Paraf, M. Marfan, M. Lesné, and M. Marcel Lelong, and the following propositions were put forward. (1) The immunity conveyed by B.C.G. is only relative, and is often established very slowly. (2) Infants should be separated at birth from tuberculous parents and kept away from them as long as possible, preferably for at least a year. This precaution is just as necessary with vaccinated as with unvaccinated infants. (3) No

[1] *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, April 13th, 1936, No. 13, p. 579.

single prophylactic measure ought to be relaxed or remitted on account of B.C.G. vaccination. (4) It is doubtful whether vaccination of infants who are to be brought up in tuberculous families is worth while performing. It would perhaps be better to reserve B.C.G. vaccination for older children and for adolescents who have not yet been infected with the tubercle bacillus. The increased resistance produced by B.C.G. may perhaps protect against mild and occasional infections when it is powerless to protect against the frequent and probably larger infections incidental to continuous contact with a tuberculous parent. It is also pointed out that patients with artificial pneumothorax are by no means necessarily free from the risk of conveying infection to other persons. There is no need for us to add to this discussion, which has brought out so clearly the opinion to which most experimental workers have come—namely, that no method of vaccination against tuberculosis is likely to do more than tilt the scales in favour of the vaccinated subject. Whatever the ultimate value of B.C.G. will be found to be in practice, it is certain that reliance on its efficacy to the exclusion of general prophylactic measures will lead to nothing but disappointment.

ENDOCRINE FACTORS IN MASTITIS

The sequence of events which leads up to the secretion of milk includes the development of the glandular epithelium of the breast by the ovarian hormones. Only after the mammary gland has been thus prepared can prolactin, the lactogenic hormone of the anterior lobe of the pituitary, induce the secretion of milk. De Fremery has found that in animals prolactin acts according to a "trigger" mechanism, one adequate dose alone being enough to start the mammary secretion, which will then continue for a variable and uncontrollable period of time. The quantity of oestrin required to produce the necessary glandular epithelial development has been shown to be much greater than occurs during a normal menstrual cycle, and corresponds rather with the concentration found in the last month of pregnancy. This probably explains why lactation occurs only in the puerperium. Another and paradoxical effect of oestrin is that it can arrest lactation if administered in suitable doses after that event has begun. Kurzrok and his associates[1] report favourably on the administration of prolactin to mothers whose milk tends to dry up. A sufficiently purified preparation of lactogenic hormone is not, however, yet available in this country, and their results have consequently not been confirmed here. Of equal or even greater importance is the relation between ovarian and pituitary hormones in cases of mastitis. Taylor[2] has attempted to classify 261 cases of breast disease from this point of view, and concludes that the ovarian hormone undoubtedly plays some part in the aetiology of diffuse nodular mastitis, though by the use of the technical methods at present available it was not possible to demonstrate any specific abnormality of ovarian or anterior pituitary function. Hypertrophy of the breast fell into two groups, of which one was aetiologically similar to the diffuse nodular mastitis and the second often associated with ovarian neoplasms, such as granulosa cell tumours and luteal cysts, in which an endocrine factor is clearly prominent. Cases in which there is abnormal secretion from the nipple, neither due to local disease nor associated with lesions of the central nervous system (such as syringomyelia), may be associated with some endocrine disturbance such as follicle or corpus luteum cysts. Geschickter and Dean Lewis[3] managed to induce mammary secretion in three cases of breast adenosis by the administration of about 30,000 international units of oestrin, followed by 600 to 1,200 bird units of prolactin, with relief of the condition. Thirteen other cases of breast disease failed to show secretion when treated with oestrin and prolactin or with prolactin alone. By biological assay they succeeded in demonstrating the presence of oestrin and prolactin in the cyst fluid of patients suffering from chronic cystic mastitis. There seems to be no doubt that certain cases of breast disease are associated with a hormone imbalance, but at present it is difficult to separate cases of mastitis into endocrine and non-endocrine groups, and even more difficult to apply successfully the appropriate treatment.

[1] *Endocrinology*, 1934, xviii, 18.
[2] *Surg., Gynecol. and Obstet.*, 1936, lxii, 562.

THE QUALITY OF MERCY

We have before in these columns asked readers of the *Journal* to give their support to the Ladies' Guild of the Royal Medical Benevolent Fund, Tavistock House North, Tavistock Square, W.C.1, and we are glad to know that the appeal made did not fall upon deaf ears. The appeal was for old clothes and any household effects no longer in use—unwanted rugs, carpets, gramophones, wireless sets, furniture : anything, in fact, that might be of use or comfort to medical men, their wives and children, who through ill-health or misfortune are in want. Many at this time of the year must be laying aside overcoats and suits that probably will not be worn again. Children will be outgrowing clothes that are still in good condition. Soft furnishings will be replaced. Last year the Clothes Committee received 995 parcels, and was able to help with gifts some 375 individuals. One mother, whose husband was incapacitated by illness, was thus enabled to clothe her daughter. In this and many other ways—for example, by giving an old lady of 95 a wireless set, by assisting in the schooling of doctors' children—the Ladies' Guild is carrying on a work of real charity for the colleagues of readers of this *Journal*. In this work the quality of mercy is not strained, but it depends upon the generosity of voluntary workers and donors. So we hope that all who can will lend a hand.

AN ANGLO-FRENCH SURGICAL MEETING

The President and Council of the Royal College of Surgeons of England have invited members of the Académie de Chirurgie of France to meet at the College, Lincoln's Inn Fields, London, W.C., on Monday, July 6th, at 10 a.m., when there will be a discussion on "The Treatment of Fractures of the Neck of the Femur by Open Operation," to be introduced by Professor E. W. Hey Groves, and Dr. John Beattie will speak on "Recent Research Work on Surgical Problems carried out in the College Laboratories."

[3] *Arch. of Surg.*, 1936, xxxii, 598.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the rheumatic diseases met with in general practice.

PHYSICAL METHODS OF TREATING RHEUMATISM

BY

MATTHEW B. RAY, D.S.O., M.D., M.R.C.P.

PART I

The syndrome of chronic rheumatism—pain, limitation of movement, and deformity—results from affections of either articular or non-articular structures. The former include alterations in the cartilaginous surfaces, synovial strata, ligaments, and capsules of the joints, while under the latter are reckoned disorders of the white fibrous tissue, from which are derived the coverings of the muscular bundles, their fascial expansions and tendinous attachments, as well as the sheaths of the nerve trunks. In its earlier stages the syndrome is mostly associated with inflammatory changes in these structures, but later it becomes related to the persistence of inflammatory exudates and their subsequent organization into fibrous bands and adhesions which seriously interfere with the smooth working of the muscles and the joints under their control. The changes briefly outlined above are aetiologically dependent on certain pathological conditions, such as stasis in capillary areas, inactivity of the skin, and a deficient sweat secretion ; all of which provide indications for the various kinds of physical treatment to be described below.

In the selection of methods care has been taken to exclude any form of treatment that is not obtainable in the average general practice. The baths can all be given in any house in which a " slipper " bath is installed, and no special apparatus is needed for the performance of massage and movements or for the administration of packs ; the necessary equipment for electrotherapy is usually available in one way or another in most practices. The physical methods of treatment to be considered are: (1) complete and partial immersion baths ; (2) packs of various kinds ; (3) radiant heat ; (4) electrical treatment ; and (5) massage and manipulation.

Complete Immersion Baths

A complete immersion bath requires from fifty to sixty gallons of hot water in the ordinary household or slipper bath. The temperature ranges between 100° and 108° F. The duration depends on the temperature ; at the lower levels for from ten to fifteen minutes, and at higher degrees a very few minutes, will suffice owing to the risk of causing faintness. In all cases a cold wet towel should be wrapped round the head of the patient as the bath is entered to prevent a headache or feeling of oppression, which is so apt to occur when this precaution is neglected.

Brine Baths

A brine bath can be prepared by adding about 6 lb. of common salt or Tidman's sea salt to fifty gallons of hot water. This is equivalent to the average saline content of the sea, but not nearly so strong as the Droitwich natural brine. The temperature should be fairly high, 104° F. or over, in order to induce free perspiration. The patient should remain in the bath for from ten minutes to a quarter of an hour, after which he is well packed up in blankets for an hour so that the sweating may be continued. It is always advisable, if practicable, to give a brine bath the last thing at night so that the patient may retire to bed directly after and not interrupt the sweating. If there is any difficulty in getting the patient to perspire, the previous administration of two teaspoonfuls of sp. aeth. nit. will generally overcome it.

Medicated Baths

A mustard bath is prepared by adding from a half to one ounce of mustard to each gallon of water. The required quantity should be mixed with a little cold water before its addition to the bath. Colman's mustard bath cartons containing the exact amount necessary for a bath are very convenient. The temperature should be about 103° F. and the duration from ten to twenty minutes, depending on the degree of toleration possessed by the patient's skin.

The high specific heat of water, which renders it such an admirable medium for the transference of heat from one body to another, may be increased by the addition of salts of various kinds. The practical point arising from this is that a mineralized bath will " hold " heat better than one of plain water. The same applies to a pack of mud or a linseed-meal poultice. Whether any of the mineral constituents of a saline bath are absorbed by the skin is a moot point.

Rationale of Treatment

If the temperature of the bath is very high a momentary constriction of the peripheral vessels takes place, which may induce shivering and a sensation of cold. This quickly passes off and the skin becomes reddened from the collateral hyperaemia that ensues. In a hot bath of moderate temperature this phenomenon does not occur, as the cutaneous vessels dilate at once. The peripheral hyperaemia thus induced has the effect of breaking down vascular stasis, which is one of the associated pathological changes in many rheumatic conditions.

Immersion in a bath heated well above skin temperature temporarily abolishes the radiation of heat from the surface of the body ; in consequence, this heat accumulates internally and the general body temperature rises. The stimulation of the sweat glands brought about by the heating of the blood usually has an analgesic effect. Whether this is due to the elimination of toxic material in the perspiration or to some unexplained factor associated with the pyrexia it is impossible to say The basic fact remains, however, that any measure which induces sweating can be counted on to relieve the pain of rheumatic conditions to a greater or less extent. A brine bath not only retains its heat more effectively than one of plain water, thus preventing heat from being radiated too quickly from the surface of the body, but has, on account of its saline content, an additional advantage in the increased stimulation of the sweat glands. To some extent the same applies to a mustard bath, except that the dilatation of the peripheral vessels and the stimulation of the sweat glands is more directly due to the irritating action of the mustard on the skin.

It must be remembered that the full immersion bath is somewhat tiring, and although it is applicable in con-

ditions affecting large areas of the body—crural, lumbar, or brachial fibrositis, or that more or less generalized form, "panniculitis"—care must be taken not to prescribe it in cases in which myocardial weakness, cardiac hypertrophy, true arteriosclerosis, or organic disease of the nervous system are present as complications.

Partial Immersion Baths

Partial immersion baths afford considerable relief from the pain of more localized conditions. They are much less tiring than a full immersion bath, and may therefore be used for more delicate patients.

HOT SITZ BATH

An ordinary "hip" bath is half filled with water at a temperature of 100° F. In front of this is placed a foot bath at a temperature of 105° F. The patient, fully undressed, sits in the hip bath and places the feet in the foot bath. Both patient and baths are then covered with blankets. Once the patient is comfortable, a cupful of water is removed and replaced by gently pouring a cupful of boiling water down the side of the bath. This should be repeated every minute until the temperature of the bath water reaches 110° F. The patient remains in the bath for from ten to twenty minutes; then he is thoroughly dried and put to bed between blankets.

The bath causes profuse perspiration, as the thermal stimulus applied to comparatively small areas of skin affects the whole body surface. It is very useful as a substitute for a full immersion bath. Considerable relief has been obtained from its use in gluteal fibrositis in its earlier stages, and later on the bath is followed by massage.

The hot mustard sitz bath is prepared by adding a half to one ounce of mustard to each gallon of water, as described for the full mustard bath. It is a more intensified form of sitz bath, and the indications for it are very much the same.

HOT LEG BATH

The hot leg bath may be given in any suitable vessel, such as a large bucket, capable of holding enough water to cover the leg below the knee. The temperature should be kept at about 108° F. in the manner described above; its duration is from ten to twenty minutes. Many painful rheumatic and gouty affections of the feet and legs derive benefit from its use. Its action may be intensified by the addition of mustard in the proportion mentioned.

GLOVE BATH

The hands enclosed in rubber gloves, a few sizes too large, or the feet encased in rubber socks that reach halfway up the calf, are immersed in hot water maintained at a temperature of from 105° to 110° F. for twenty minutes to half an hour, daily or alternate days, as ordered.[1] Ordinary surgical gloves are used and a waterproof sock can easily be devised. If necessary, an ointment of wintergreen, methyl salicylate, iodine, or menthol can be applied before putting on the gloves or socks. Owing to the retention of heat and the raising of the local internal temperature, it will be found that on removing the coverings of the hands and feet the parts are bathed in a copious perspiration and are much more supple. Massage can therefore be more efficiently carried out as all muscular spasm is relieved.

The immersion in hot water of the hand or foot enclosed in a waterproof covering has the effect of a poultice, an effect vastly different from that which follows their immersion without such protection. Among the many indications for its use are arthritic changes with consequent stiffness, pain, swelling, and deformities in the wrists, fingers, ankles, and feet; sprains and strains; stiffness following old injuries; fibrositis of the palmar or plantar fascia; in the manipulation of flat-foot when muscular relaxation is required; and in any other condition in which pain and stiffness are prominent symptoms.

Mud Packs

Mud packs are prepared by slowly adding powdered fuller's earth* to a basin of very hot water in exactly the same way as for a linseed poultice. When the required consistency has been obtained the mass is spread out quickly to a thickness of three-quarters of an inch on a piece of linen or calico, covered with some fine muslin, and applied to the affected part. Over all a waterproof sheet and blanket are placed. The pack should remain on for half an hour or longer.

Bags of mud from Pistany are procurable. They are made to fit various parts of the body—shoulders, back, knees, etc. Before use they are dipped in very hot water (120° F.) and applied for three-quarters of an hour or so in the manner described. These packs have an additional advantage in that they can be used over and over again by simply hanging them up to dry after their application.

A mud pack has very much the same effect as a poultice. By its pressure on the skin it tends not only to empty the superficial veins, but also to bring about a general cutaneous stimulation. Tissue vitality being thus stimulated, the absorption of oedematous swellings in the neighbourhood of the joints and among the fascial planes is facilitated. A hot mud pack applied along the back of the thigh or over the buttock is a very efficient remedy in sciatica. It has been repeatedly noted in practice that moist heat is always more effective in sciatica than dry. Swollen and painful knee-joints derive great benefit from mud applications.

CATAPLASMA KAOLIN

Cataplasma kaolin, the formula for which is given in Martindale and Westcott's *Extra Pharmacopoeia*, is perhaps more convenient to apply. The tin container should be placed in a pan of boiling water, and when the contents are hot enough they should be spread thickly on a piece of calico in the manner described for mud. The pack may remain on for several hours, or all night. It is used for very much the same conditions as those for which mud is employed; it has largely taken the place of the old-fashioned linseed poultice. If used hot enough, it is one of the most efficient methods of relieving pain.

MUSTARD PACKS

A level tablespoonful of mustard is made into a paste with tepid water; after five minutes this is made up to a pint with very hot or nearly boiling water. A small towel or piece of flannel is then soaked in this decoction, wrung out, and applied to the affected part. The pack should be left on for five to ten minutes according to the sensibility of the patient's skin. After the removal of the cloth the part should be thoroughly well sponged over to take away the remains of the mustard. It cannot be too strongly insisted upon that in no circumstance should mustard ever be applied to broken skin. Applied along the back of the thigh, over the shoulder or upper arm, or over the chest, the mustard cloth will often relieve the pains of sciatica, brachial neuritis, neuralgias, and pleurodynia—provided in the latter case that the pain is really due to fibrositis of the intercostal muscles and not to a coronary thrombosis.

* China clay will do equally well. It is a matter of regret that more attention is not paid in this country to the supply of muds for therapeutic purposes.

PARAFFIN WAX APPLICATIONS

Solid paraffin wax (obtainable at all oil merchants) is melted in a tin over a gas burner ; it melts at approximately 122° F. It is then poured into a suitable receptacle, and, if a hand or foot is to be treated, the part is thrust into the liquid and kept there for fifteen to twenty-five minutes. If sufficient wax cannot be melted in which to immerse a hand or foot, or if a knee, elbow, or shoulder is to be dealt with, the medium must be either painted on with a broad brush or poured on from a small dipper. Six or seven coats should be painted on, each one of which must be allowed to dry before the next is applied. The part is then wrapped up in waxed paper and the whole covered by a mackintosh sheet and a small blanket for the required time. At the end of the application the wax can be readily stripped off owing to the copious flow of sweat that has taken place on the surface of the skin.

The solidification of the wax squeezes the blood out of the cutaneous vessels and at the same time prevents the radiation of heat from the part which is under treatment. It will be noticed that on removing the wax the skin is quite pale. Paraffin wax is used extensively in painful conditions of the joints—shoulders, elbows, wrists, knees, ankles, and feet. It is generally followed by massage. It has a marked analgesic effect in many non-articular conditions, such as scapulo-humeral fibrositis and bursitis in the same region. Perhaps its most extensive application is in the treatment of deformities of the fingers associated with arthritic changes.

REFERENCE
[1] *British Medical Journal*, 1932, ii, 100.
(To be continued)

PIONEERS IN RESEARCH ON TROPICAL DISEASES

STEPHEN PAGET MEMORIAL LECTURE BY SIR MALCOLM WATSON

On the occasion of the annual general meeting of the Research Defence Society on June 9th, with Lord Lamington in the chair, the tenth Stephen Paget Memorial Lecture was delivered by Sir Malcolm Watson, director of the Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine. In it he summarized the work of Manson, Ross, and Walter Reed, and although it covered ground which must have been familiar to many in his audience the story was so well retold as to have new fascination.

Sir Malcolm Watson began with an allusion to the opponents of experimental research. He thought that they could never have seen the things which he himself had seen during his years in the Tropics.

"I have seen cholera sweep away thousands ; I have seen men smitten so suddenly by cholera when walking along that they have dropped on the road in agony ; and I have known fear of the disease drive hundreds in panic from their homes. I have seen a city so stricken by plague that to enter it was to run a grave risk. I have known whole families killed off by malaria. . . . As a direct result of the researches which some well-meaning but misinformed people would prohibit it has been my privilege to take a part in stamping out many dangerous diseases; so that in some places to a miserable people, half-starved, childless, barely clinging to life, there came health and prosperity and happy children."

Patrick Manson

The lecturer then briefly sketched the work of Sir Patrick Manson on filaria and malaria, and the transmission of these diseases from one victim to another. It was his researches on the filarial worm and its connexion with elephantiasis which led to discoveries that could be called by no other word than epoch-making, and earned for Manson the title of "Father of modern tropical medicine." Malaria was due to a parasite as different from the filarial worm or its embryo as chalk from cheese. The malarial parasite was only one-fiftieth the size of the filarial embryo worm, and once in twenty-four, or forty-eight, or seventy-two hours, according to its species, it divided, as lowly cells did, into many parts, each as complete as its parent. But although the two parasites differed in so many ways, certain facts in their life history suggested to Manson's acute mind that both made the escape from their human hosts by being drawn out of the blood, and living for a period and developing in a blood-sucking insect. He had been struck with one special form of the malarial parasite, the crescent body, which became active only after the blood had been withdrawn from the body, just as the filarial worm became more active and threw off its sheath under similar conditions.

"Most people regarded the crescent as having no significance and thought of the changes seen under the microscope as the agonies of a parasite *in extremis*. But Manson, with greater vision, regarded them as . . . the first stages in the parasite's life outside of man. Once again Manson's deduction was as brilliant as it was to prove beneficial. Living in London, where there was no natural malaria, Manson saw no opportunity of putting his hypothesis to the crucial test—the experiment. Nevertheless, great ideas are immortal: inspiration to great achievement passes from one generation to another, and if Manson's opportunity for experiment were past, as it seemed, fortune gave him Ross and linked the names of Manson and Ross for all time."

Ronald Ross

It was Ross who carried on the experiment, with infinite patience, dissecting and searching the bodies of hundreds of mosquitos until he picked up the next clue. But at length he conclusively showed that the malarial parasite left man by being sucked up through the mosquito's proboscis when the mosquito fed on man, and was injected into another man by the same route after an interval of some ten days. During those ten days in the mosquito the parasite was reproducing itself sexually, and the young found their way to the mosquito's proboscis and so back to man. The later stages of this research were carried out by experiments on birds and with bird malaria.

Thanks to the brilliant deductions of Manson and the patient experiment of Ross, the mode of infection of malaria became clear. As a direct result of the work of these two men many methods were devised for controlling and destroying the insects, bringing about the reduction, in some places the complete elimination, of malaria. By altering the conditions under which the larvae of mosquitos lived the propagation of the insect could be interfered with, and often stopped, at the larval stage of its existence.

"We learned how to say to species 'Come' or 'Go' as we pleased. This work was begun in Malaya. Professor Swellengrebel carried these new ideas of how to control mosquitos and prevent malaria to Java and later to Europe, with brilliant success ; Dr. Darling took them to the United States ; Dr. Ramsay introduced them on a large scale with outstanding results into India. So one discovery leads to another, and the whole world benefits. Already we can claim to have saved a million lives and an incalculable amount of sickness and misery as a direct result of the researches of Manson and Ross on malaria alone ; and we are only at the beginning of the practical application of these discoveries."

Walter Reed

Finally the lecturer touched on the work of Walter Reed, head of the Yellow Fever Board appointed by the U.S. Government to inquire into the yellow fever attacking the troops in Havana. Of the four medical men who constituted the Board, one, Jesse M. Lazear, died of yellow fever contracted from a mosquito which he

deliberately watched bite him in a yellow fever ward, and another, James Carroll, was deliberately infected and suffered from a severe attack of yellow fever, which damaged his heart and led to his early death. The result of the work is perhaps best described in a letter written by Reed to his wife in the closing moments of 1900:

"Only ten minutes of the old century remain. . . . It has been permitted to me and my assistants to lift the impenetrable veil that has surrounded the causation of this most wonderful, dreadful pest of humanity and to put it on a rational and scientific basis. I thank God that this has been accomplished during the latter days of the old century. May its cure be wrought out in the early days of the new!"

In 1900 the deaths from yellow fever in the city of Havana numbered 310; the average for the years 1891 to 1900 was 487, but in 1901 the number was down to eighteen, and twelve of those were in the first two months of that year. Then came the triumph of Panama, when yellow fever was swept completely out of the canal areas. A small outbreak in 1926 in South America led to renewed research, which incidentaly claimed the lives of three distinguished workers within a year: Adrian Stokes, Hideyo Noguchi, and William Alexander. It was then discovered that mild human cases and yellow fever in jungle animals formed a reservoir of the disease, which was a formidable factor in the problem of its prevention. By infecting mice a vaccine had now been produced which protected doctors and nurses attending patients suffering from the disease, and also protected those whose duties took them into the jungle yellow fever areas.

The lecturer said that he desired to leave his audience with the thought of these three men, Manson, Ross, and Reed, exiled in the heat and dust of far-off lands, with calm and steadfast minds amidst the terrors of cholera, yellow fever, and other deadly plagues, often laughed and sneered at, sometimes insulted and reviled, and even obstructed, but resolute, tireless, and unshaken, turning neither to the right hand nor to the left, doing the work to which they felt the Master had called them.

In proposing a vote of thanks to the lecturer, Professor A. V. Hill said that Sir Malcolm Watson had not spoken of his own part in the story. He was one of the earliest workers in the Tropics to grasp the significance of the discoveries which he had related, at a time when others with equal or better opportunities adopted a sceptical or hostile attitude. If, as he said, a million lives had been saved by Manson and Ross, Sir Malcolm himself must have saved tens of thousands. He and his colleagues in tropical medicine should be happy men. Sir Leonard Rogers, in seconding, spoke to the same effect. The credit for the enormous reduction in the mortality from malaria in the Malay States was his alone. Sir Malcolm Watson, in reply, referred humorously to the immense responsibility which attached to the life-saver. In China a doctor had saved the life of a native, only to find him on his doorstep next morning, saying, "You saved my life, and therefore it is up to you to keep me for the rest of my days!"

At the annual business meeting of the Research Defence Society, which followed the lecture, some excellent propagandist work was reported on an income of £1,000, one-quarter of which represents a legacy.

On June 11th the Earl of Harewood laid the foundation stone of the nurses' home at St. Mark's Hospital, City Road, London. The Lord Mayor, Sir Percy Vincent, who presided at the ceremony, said that St. Mark's with its reputation for successfully treating patients suffering from cancer, was increasingly sought by sufferers, so that a big scheme of enlargement had become necessary. The first stage in the reconstruction was the nurses' home, to accommodate 50 nurses and 27 maids. When the home had been built and satisfactory accommodation for the nurses ensured, it was proposed to increase the number of beds in the hospital to 95, to provide a second operating theatre, and to enlarge the cancer research laboratories and the out-patients' and *x*-ray departments. Approximately £40,000 was still needed.

LISTER INSTITUTE REPORT

The forty-second annual report of the Lister Institute of Preventive Medicine, published on June 9th, reviews the work of the Institute during the past year. The governing body records with regret the deaths of Captain S. R. Douglas, Sir Wilmot Herringham, and Professor J. S. Haldane, whose connexion with the Institute had extended over thirty years. Co-operation with the Medical Research Council had been continued, and the hospitality of the Institute's laboratory has again been extended to foreign guests displaced from scientific posts in Germany.

Virus Studies

The fact that the elementary bodies which are generally believed to constitute the sole effective aetiological agents in all virus diseases can now be separated from crude virus-containing material in a state of comparative purity has favoured the study of other aetiological relationships; even in virus diseases such as chicken-pox and herpes zoster, which have so far defied attempts to secure transmission to laboratory animals, it has been possible, particularly by agglutination experiments with highly concentrated suspensions, to demonstrate not only an aetiological connexion between the elementary body and the virus disease, but also in some cases to expose the nature of the affinities between one virus and another.

Dr. C. R. Amies, continuing work done by Professor J. C. G. Ledingham in collaboration with Dr. W. E. Gye, has confirmed their experiments, which indicated that the filterable tumour-exciting agents of the Rous and Fujinami fowl sarcomata were probably particulate in nature, and by repeated fractional centrifugation has obtained highly infective suspensions which according to the serological tests employed were free from fowl protein. Studies in the aetiology of acute rheumatism and acute rheumatoid arthritis have been continued by Dr. G. H. Eagles with the assistance of Dr. P. R. Evans and Mr. A. G. Timbrell Fisher. Pericardial and pleural effusions and joint fluids from cases of acute rheumatic fever have yielded suspensions of bodies which in stained preparations and on dark-ground examination are indistinguishable from the elementary bodies demonstrable in virus suspensions. Agglutination tests in hanging-drop preparations are being carried out with these suspensions, using the sera from cases in different stages of rheumatic infection. Work on equine encephalomyelitis virus seems to show that unlike other neurotropic viruses it reaches the central nervous system by the perineural lymphatics of the olfactory nerve. The work on pseudo-rabies and rabies has been continued, as has the investigation into the potency of human convalescent serum in the treatment of poliomyelitis.

Serological Studies

Dr. A. Felix has continued his work on the "Vi" antigens of *S. typhi* and of other Salmonella species. It has been established that the "Vi" antibody elaborated in response to immunization with formolized "Vi" antigen is not in all respects identical with that resulting from immunization with the natural "Vi" antigen contained in the living bacilli; the nature of this alteration following exposure to 0.2 per cent. formalin is still obscure.

In the prophylaxis of *C. oedematis maligni* infections it has been thought, hitherto, that the only antigens taking part in the production of protective immune bodies are the soluble exotoxin elaborated in culture and the "O" antigen of the bacillary body. Recently, however, Dr. D. W. Henderson has shown the presence in this organism of a second bacterial antigen which is heat-labile and capable on injection of stimulating the production of highly potent anti-bacterial sera. So far *in vitro* evidence of the presence of this antibody is lacking, and a possible relation with "H" antibody has not yet been established. The presence of a new type of antigen has also been demonstrated by *in vitro* methods in certain *C. welchii* strains. It has been found associated only with those strains which produce the "D" type toxin ("ovitoxicus" types). Evidence now accumulating suggests, in fact, that it may be a prototype of the "D" toxin.

Endocrines and Vitamins

The investigations of artificial male sexual hormones has been continued by Dr. V. Korenchevsky with Dr. S. Levy-Simpson, Dr. J. M. Gulland, Mrs. M. H. Dennison and Mrs. I. Brovsin, with the co-operation of Professor Ruzicka. Androsterone, androsterone-diol, testosterone, and the water-soluble salts of androsterone and androsterone-diol have been investigated, experiments being performed on castrated male and ovariectomized female rats. By curves showing the relation between the dose of the preparation and the effect on the sexual organs, using Korenchevsky's method of assay, it was shown that androsterone-diol is similar to testosterone in activity and that both differ from androsterone; that androsterone-diol and testosterone appear to bring about normal development of the sexual organs while androsterone fails to do so.

Work on vitamin standards and units has been carried out on the lines recommended by the 1934 International Conference on Vitamin Standardization, at the request of the Accessory Food Factors Committee of the Lister Institute and the Medical Research Council. The anomalous behaviour of certain forms of vitamin D when administered as anti-rachitic agents to certain species has introduced a complication into the interpretation of vitamin D standardization which is perhaps explicable by the discovery of Windaus and others of the existence of more than one form of vitamin D. The scattered information in the literature upon this subject is being collected with a view to publication. Research on the relation of the two constituents of vitamin B_2 to the skin lesions occurring in rats deprived of this vitamin has continued, parallel with further work on the purification of vitamin B_6 and some investigation on the porphyrin excretion of rats deprived of vitamin B_2 but subject to visible and ultra-violet light.

It was demonstrated during the year under review that it was possible to add synthetic ascorbic acid to fruits and vegetables before canning without great loss of the vitamin content during the process. The work has been repeated under conditions comparable to those in large-scale canning, and the results obtained are equally favourable.

Therapeutic Sera

Production of the specific toxins of certain haemolytic strains of streptococcus is now well established, as is the fact that a corresponding antitoxin is able to neutralize this toxin in the tissues of man and animals. The problem whether the anti-bacterial element should be taken into account when preparing anti-streptococcal serum for therapeutic use is still unsettled. Dr. G. F. Petrie is engaged in examining the possibility of devising protection tests in mice, similar to those employed for the assay of anti-pneumococcal serum, which will permit an estimate of the potency of the anti-bacterial constituent in specific streptococcal immune serum. He is also concerned with Dr. W. T. J. Morgan in observing changes in the unitage of samples from a batch of concentrated anti-pneumococcus serum, Type I. In this particular batch, after storage for varying times at various temperatures, there was a decided loss of potency during the first year of storage even under optimum conditions, but no further loss has taken place in the second twelve months of storage. Dr. Morgan has continued his work on the specific polysaccharide of Shiga's bacillus with Dr. Kurt Meyer. He has established a relationship between the heterophile hapten and the specific polysaccharide hapten in the "smooth" form of *B. dysenteriae* Shiga. The experimental data furnish strong grounds for believing that the heterophile receptors and the specific bacterial receptors coexist in a single homogeneous polysaccharide molecule.

According to the *Journal of the American Medical Association* fifty new typhoid carriers were registered in Upstate, New York, during 1935, exclusive of those in State institutions; twenty-four were removed from the register, leaving 361 under supervision on December 31st, 1935. Of those removed from the list fifteen died, five of the carriers were released after cholecystectomy, and four moved outside the jurisdiction of the State Department of Health.

Ireland

All-Ireland Hospital Association

At a meeting held in Dublin at the Royal College of Surgeons, on May 25th, attended by over 100 delegates, it was unanimously decided to establish an All-Ireland National Hospital Association, representative of the governors, medical staffs, and administrative bodies of hospitals. Such an organization will be of incalculable value to the Irish hospitals, particularly, as pointed out by the report of the Hospitals Commission, in regard to the advantages to be derived from co-operative buying, the standardization of hospital furniture, etc. Dr. J. P. Brennan, endorsing the formation of the Association, also urged the necessity of supporting the International Hospital Association and said that their own association had to be brought into existence in order to achieve this. This progressive step in hospital co-operation is to be warmly welcomed, and it is gratifying to note the cordial relations that exist between the hospital authorities throughout the whole of Ireland. The formation of an All-Ireland Hospital Association should be a stimulus to other countries hitherto inactive in this direction.

Scotland

Transfusion Service in Edinburgh

At a meeting in the City Chambers, Edinburgh, on June 10th, which was attended by representatives of hospitals and other institutions in the city, Mr. W. J. Stuart submitted a motion for the formation of a blood transfusion service. He said that six years ago a blood transfusion service had been founded in Edinburgh by Mr. J. R. Copland and had been carried on at his own expense as a voluntary service, last year supplying blood for 1,100 transfusions. In each of these cases a telephone call from the hospital for a donor meant that Mr. Copland must immediately find a suitable donor, and this might involve several visits, transportation to the hospital, and a day's loss of work for the donor. A daily average of three donors was required, and on some days even seven or more, and Mr. Copland had found that he was unable to carry on this service single-handed. It had been conducted in the most efficient manner, but it must now be put on a sound financial and business footing, and it was proposed that a service should be instituted in Edinburgh and managed by a committee. It might be argued that a blood transfusion service was so important that it should be municipal or national, but the matter was now urgent as the present arrangement must come to an end in a few weeks. Mr. Henry Wade, President of the Royal College of Surgeons of Edinburgh, said that the blood must be a free offering of people who loved their fellow mortals, and the service could not be organized on a strictly commercial basis. The blood had been donated generally from men who were in banks and offices, or who were doing manual labour, and they had given it freely and willingly. Professor W. T. Ritchie, President of the Royal College of Physicians of Edinburgh, proposed that invitations to serve on the committee should be sent to representatives of various bodies including hospitals, churches, Red Cross and ambulance organizations, and medical institutions, and the Lord Provost undertook to see that these invitations were sent out.

Training of Veterinary Surgeons

At the annual general meeting of the Royal College of Veterinary Surgeons held in the Royal (Dick) Veterinary College, Edinburgh, on June 4th, the president pointed out that the total of 920 students who had presented themselves for examination in the past year was the largest number ever examined in one year during the

existence of the College. The distinction of Honorary Fellowship of the College was thereafter conferred on Professor J. F. Craig of Liverpool, and on Professor J. D. Stewart of the University of Sydney. At a luncheon held in connexion with the meeting, Professor D'Arcy Thompson, President of the Royal Society of Edinburgh, in proposing the toast of "The Royal College of Veterinary Surgeons," remarked that he was old enough to remember that fifty to seventy years ago their profession was not much esteemed. Veterinary science had grown with the times and had become an essential part of science in the widest sense. The president, Mr. J. W. M'Intosh (London), in replying, said that the duty of the Royal College Council was to give a general training in veterinary science, leaving individuals to specialize if they desired after they had qualified. He believed there was no other profession that had made greater progress within the last fifty years, and its scope of usefulness was being constantly enlarged. Mr. P. R. Laird, secretary of the Department of Agriculture for Scotland, stated that the veterinary colleges, the Department of Agriculture, and the Animal Diseases Research Association were the chief partners in a big business whose task was the prevention and cure of animal disease. The importance of that task was evident from the fact that 80 per cent. of the value of Scottish agriculture was in live stock and live-stock products. Amazing advances in research work had been made since the war with consequent enormous savings to the country, yet the incidence of disease seemed to have been increasing, and this was probably part of the price that had to be paid for more intensive production.

England and Wales

National Institute for the Deaf

The silver jubilee of the National Institute for the Deaf was marked by the opening by the Duke of York of its new headquarters at 105, Gower Street, W.C., on June 11th. Lord Charnwood, who presided over the brief ceremony, said that the Duke of York's visit gave great encouragement to an organization which had been growing up for twenty-five years, doing good work in a quiet way, and was now launching out on a new enterprise requiring more money. It was just seventy years ago that the late Mr. Leo Bonn, after whom the hall in which they were assembled had been named, then a youthful citizen of Frankfort, found himself about to be made a Prussian subject by force of arms, and so came over to this country, was naturalized here, prospered in business, and became the father of a British officer who distinguished himself much in the war. Mr. Bonn, being afflicted with deafness, resolved to do something to help his fellow-sufferers. He took counsel with three advisers, all of whom were present on that occasion—namely, Sir Francis Fremantle, Mr. Story, who afterwards became secretary of the institution, and Miss Hare, who taught Mr. Bonn lip-reading—and between them they founded the Central Bureau for the Deaf, out of which the Institute had grown. The work had gone ahead in a way which gave them satisfaction on the whole, but all the time there had been pressing upon them the needs of the large class of people who lost their hearing later in life, meaning not only the loss of social intercourse, but sometimes of livelihood. There were many such persons for whom much could be done, both by the teaching of lip-reading and by training for a new trade in which deafness would not be such a disadvantage. The new building had been acquired in the expectation that the Institute would have means afforded it to carry out this larger work. The Duke of York said that he felt a generous public did not fully realize the great handicap which deafness entailed. It was not generally obvious to the eye, and therefore it did not appear to get a full share of sympathy. There were two classes of deaf people: those who were born deaf, and therefore were partly dumb, and the very large class who, from sickness or accident, acquired deafness later in life. It was tragic to realize the position of the skilled and competent person who gradually, or perhaps suddenly, was rendered unable by reason of deafness to pursue the calling for which he had been trained. The special work in view of which these new premises were being opened was on behalf of those who had thus been deafened, and for whom so far no organized effort had existed. The advice of the Institute was constantly being sought with regard to hearing aids, suitable occupations, and training, but it was unable to deal with this growing volume of work unless help was forthcoming from a charitable public to enable it to enlarge its staff. He was glad to hear that the Pilgrim Trust was making a grant of £2,000 to be applied to reducing the debt on the new headquarters. A vote of thanks to the Duke of York was moved by Mr. Maurice Birley, chairman of the executive committee, and seconded by Lord Snell. It was mentioned that the cost of the new headquarters, including internal reconstruction and furnishing, was £12,500, of which £6,000 had still to be found. Among work which it was hoped would be possible was a classification of the deafened according to employment, the provision of a library on deafness, the equipment of a silence room for testing deafness and advising as to aids, an exhibition of hearing appliances, the training of teachers in lip-reading, and the extension of lip-reading facilities. An appeal is being made for £50,000 to render these advances possible.

New Nurses' Home at Papworth

Sir Kingsley Wood, the Minister of Health, accompanied by Dr. A. S. MacNalty, Chief Medical Officer of the Ministry, visited the Papworth Village Settlement, near Cambridge, on June 12th. The main purpose of the Minister's visit was to lay the foundation stone of a new home for tuberculous nurses, but before lunch he made a tour of the Settlement with the medical director (Sir Pendrill Varrier-Jones) in order to study all aspects of the work. At the ceremony later he referred to Papworth as "the modern miracle." It was proposed, he said, to build a home for the after-care of nurses who had contracted tuberculosis in the course of their duties. Since 1930 Papworth had found it possible to employ some nurses who had come to the Settlement as patients, either in the wards or in the industries under sheltered conditions, during the critical years following discharge from the sanatorium, and the idea of the present scheme was to offer the same opportunity to a larger number of nurses. In the seventeen years since the Ministry of Health was set up, the total expenditure falling on public funds on revenue account for the prevention and treatment of tuberculosis had reached over £50,000,000. Many important factors had played their part in conquering the disease, like better housing and nutrition, improved hygiene, and increased knowledge. Papworth was the pioneer village settlement in this country. It had its origin in the recognition of the fact that the main obstacle to the complete efficiency of sanatorium treatment was the difficulty of satisfying the need for adequate protection and care of the patient during the critical years that supervene after discharge. The Settlement was essentially a preventive measure, as it afforded the best possible protection to the family of the tuberculous patient. It was the proud boast of Papworth that not one of the many children of tuberculous patients who had lived in the Settlement had developed tuberculosis.

The fifteenth International Congress for Hydrology, Climatology, and Medical Geology will be held at Belgrade from September 25th to 29th, under the presidency of Professor W. Corovitch, rector of Belgrade University. The subjects for discussion will be: the thermal treatment of diabetes; new problems in the biophysics of water; the climate in the prevention and treatment of juvenile tuberculosis; and the geology of the spas of Yugoslavia. Further information can be obtained from Professor Neskovitch, 42/1 Rue Nemanzina, Belgrade.

Reports of Societies

DIAGNOSIS OF CHRONIC ABDOMINAL PAIN

A joint meeting of the Devon and Exeter Medico-Chirurgical Society and the Torquay Medical Society was held at the Torbay Hospital on May 21st, Dr. ERIC CATFORD, president of the Torbay Medical Society, being in the chair. Dr. CHARLES SEWARD gave an address on the diagnosis of chronic pain in the right lower quadrant of the abdomen.

Dr. Seward said that pain might be felt in the skin, subcutaneous fat, muscle, peritoneum, viscera (appendix, caecum, adjacent ileum and glands, ovary and tube, kidney and ureter), bones, and joints. Hurst had shown that visceral pain was due to pressure on the splanchnic nerves from increased tension in the visceral wall ; this might be due to peristalsis or spasm. Spasm might arise from an adjacent lesion or as a reflex response to a distant focus of irritation. When peristalsis caused pain this signified obstruction below, which again might be extra-mural (as in adhesions or hernia) ; mural as in new growth, or in the spasm of muco-membranous colic ; or intramural, as in gall-stone or renal calculus. Pain in the right iliac fossa, when associated with visceral disease, was produced in one of two ways: (1) in inflammatory lesions, by contact of the inflamed organ with the exquisitely sensitive anterior or the less sensitive posterior abdominal wall, the somatic supply being dorsal nerves X to XII ; and (2) where there was no inflammatory origin pain would arise in the iliac fossa, as, for example, in mucous colic or in carcinoma of the sigmoid colon. This spontaneous pain was due to spasm or peristalsis behind an obstruction. Morley considered that it might occur in the fixed portions of the colon, and be fairly accurately localized there owing to the exaggerated peristalsis dragging upon the sensitive parietal peritoneum to which the bowel was adherent, in the case of the right lower quadrant the innervation being by the same dorsal nerves. Thus the peritoneum was the medium through which lateral pain was appreciated. Splanchnic pain might occur with it, and would alone be present where a mobile portion of the colon was concerned. The causes of pain in the right lower quadrant naturally came under three headings: (1) extra-abdominal, with the focus of irritation in the cord itself, in the posterior root ganglion, or in the nerve, the distribution of which was in (2) the abdominal wall (skin, fat, and muscle), bones and joints, and also peritoneum, and (3) intra-abdominal—peritoneum and viscera. Recurrent appendicitis displayed itself reflexly in various ways, as, for example, dyspepsia simulating gastric ulcer. Such dyspepsia might be associated with, or accompanied by attacks of, pain in the right iliac fossa. Lower down in the tract there might be reflex spasticity of the colon, with resultant muco-membranous colic. Constipation was usually an accompaniment, but diarrhoea ensued when the rectum was irritated by an appendix situated in the pelvis. Frequency of micturition and dysmenorrhoea in the female might be likewise occasioned.

Elucidation of Pain

When investigating the source of pain anywhere in the body interrogation should be directed towards elucidating: (1) position and radiation ; (2) duration ; (3) character and mode of onset (for example, the onset might be catastrophic, constant, paroxysmal, in single attacks or bouts, or intermittent) ; (4) aggravating and relieving factors in relation to food, movement, cough, inspiration, the menses, defaecation, micturition, and weather conditions ; (5) accompanying symptoms such as dyspepsia and its concomitants (pain, flatulence, and vomiting), constipation and diarrhoea, urinary frequency, dysuria or haematuria, dysmenorrhoea and discharges, fever, and pain elsewhere, as in the back or joints. In appendicitis the position was epigastric or umbilical, or in the right iliac fossa radiating in attacks to these situations. Tenderness and rigidity would vary according to the position of the appendix. The duration might be of any length, and the character and mode of onset might be represented by constant discomfort, short paroxysmal attacks of colic, or by intermittent pain in appendicular dyspepsia. In this connexion Dr. Seward quoted a recent case in which all these symptoms had appeared from time to time in composite form or as isolated features. The operation (subsequently affording complete relief) had disclosed a fibrous adherent appendix with a small portion of fat at the tip and a constriction of the lumen about the middle.

In the full routine examination great care was necessary in palpating the abdominal wall. The skin should be stroked gently to determine hyperalgesia (as might be present in herpes zoster or as a neuralgia in a former operation scar). The panniculus adiposus should be next investigated ; tenderness here was likely to be overlooked if examination started with deep palpation. Dr. Seward quoted the aphorism of Mackenzie: "No conclusion should be drawn as to the sensitiveness of an organ stimulated through a structure itself sensitive." If gentle pressure elicited tenderness over McBurney's point the muscles of the abdomen should be brought into play by lifting the head and shoulders, coughing with the trunk so flexed, or passively extending the trunk. Persistence or accentuation suggested a muscular cause. If pressure with the abdominal wall relaxed caused pain, referred to the umbilicus or epigastrium, the appendix should be suspected ; in any case pain on pressure with relaxed muscles indicated an intra-abdominal affection. Although a vaginal or rectal examination could only detect a pelvic appendix, it would help in the diagnosis of a tumour in the right iliac fossa. Thus might be detected or eliminated appendix abscess, pyosalpinx, ovarian cyst, pericaecal tuberculosis, carcinoma of the caecum, faecal impaction, and actinomycosis. Of the intra-abdominal affections the presence of salpingitis could be determined by a pelvic examination aided by the history of discharge, menorrhagia, or dyspareunia, the aching nature of the pain, and the usually lower situation of the tenderness. A pelvic appendix was usually revealed by rectal examination, being generally in the hollow of the sacrum. Renal causes, such as calculus, pyelonephritis and bacilluria, renal tuberculosis, Dietl's crisis, and oxaluria would be suspected if the pain was associated with disorders of micturition ; but a complete urological, bacteriological, cytological, and radiological investigation might be required in arriving at the true source of the irritating focus, or in exculpating the genito-urinary tract. Dysmenorrhoea might cause pain in the iliac fossa, but the history should be helpful, as also the statement that pain, if associated with menstruation, was never unilateral in the absence of a unilateral lesion. Cholecystitis might prove a trap if the gall-bladder was low-placed ; appendicitis might simulate cholecystitis when the caecum was undescended. Ileo-caecal adenitis might be due to local causes, and careful inspection of the lower limbs, groins, and rectum might afford a diagnosis. In possible tuberculosis x-ray examination of the abdomen and chest, with the test of Mantoux and an estimation of the sedimentation rate, might be required.

Colonic causes might have their origin through inflammation or ulceration in the caecum, adjacent ascending colon, ileum, and glands, or by the caecum taking the strain of the resulting obstruction. Inflammation might be due to typhoid fever, dysentery, and non-specific colitis. A tender tumour would be caused by a caecum packed with faeces. In cancer of the caecum the patient's age would be of some significance in the history, as would also the gradual onset of constipation, colicky pain easing with an audible rumble, probably visible peristalsis, and later distension. Tests for occult blood and a barium meal would be indicated in the investigation. Of obstructive conditions cancer might cause pain in the right iliac fossa when due to malignant disease in the hepatic or splenic flexure, or in any portion of the colon. Spastic colon or colonic spasm more commonly caused pain in the left side, but pain might occur in the right side also. The sigmoid was often palpable in these cases, and the stool formation might be ribbon-like or have the appearance of sheep's droppings. The pain was often confused

with appendicular colic, but in 30 per cent. of the series collected by Ryle appendicectomy scars were associated. Although it was commonly held that adhesions might cause pain when the attachment was to the parietal peritoneum, Morley believed that compression, kinking, or actual strangulation caused pain through their varying obstructive efforts, but that mere dragging on an unobstructed intestine was not sufficient to excite pain. Caecoptosis might also be productive of right iliac pain. As regards the abdominal wall, herpes and panniculitis had already been considered as possible factors in the causation of pain in the superficial layers. Fascia and muscle had to be remembered in both the anterior wall and the floor of the pelvis in association with stitch, fibrositis, strain and rupture, necrosis following the acute fevers, and lastly, retention of the right testis. In the case of bones and joints, tumour periostitis and osteomyelitis, sacro-iliac joint disease, arthritis of the lower lumbar vertebrae, and abscess (psoas) would all require careful elimination. It had to be borne in mind that similar conditions of bone, joint, and muscle occurring higher up in the trunk might cause pain in the right iliac fossa—for example, osteomyelitis of the spine, Pott's disease, tumour, spondylitis, scoliosis, Paget's disease, aneurysm, fibrositis of spinal muscles, and herpes zoster. In the elucidation of abdominal pain a complete overhaul of the various systems was of paramount importance.

General Discussion

In the discussion Mr. D. J. BATTERHAM illustrated his observations with radiographs. He remarked that the commonest orthopaedic causes of pain in the right iliac fossa were: chronic sacro-iliac joint; sacro-iliac arthritis and tuberculosis of that joint; and new growth. He took the view that metastases in the pelvis, most commonly associated with primary growths in the prostate or breast, were productive of pain when they began to encroach on the sacro-iliac joint. Pain in the same region referable to Paget's disease was of similar explanation. In the differential diagnosis between appendicitis and glands in the ileo-caecal area he said that the attacks of pain in the latter did not assume the typical characteristics of appendicitis.

Dr. VENN DUNN referred to the importance of sacro-iliac disease, and agreed with Dr. Seward's interpretation of a unilateral distribution of pain during the menstrual period. The CHAIRMAN dwelt on the importance of pyelitis as a cause of right iliac pain. Mr. A. L. CANDLER said that he never felt quite happy in his diagnosis of appendicitis unless the patient had vomited. Foreign bodies in the appendix had been referred to as rarities; in his experience they had been comparatively common, especially threadworms. Mr. W. E. WILSON agreed with Mr. Batterham that in women ileo-caecal spasm was a common cause of pain in the right iliac fossa. Such women were aged 35 to 45. They commonly carried an appendicectomy scar, and were most helped by belladonna, liquid paraffin, and a supporting belt of an efficient pattern. Dr. Seward replied that he believed the iliac fossa pain in sacro-iliac affections was consequent on the involvement of the posterior parietal peritoneum and was expressed through its somatic nerve supply. In turn the explanation of the pain occurring in the case mentioned by Dr. Venn Dunn was through the ovarian tumour effecting contact with the sensitive anterior abdominal wall.

A congress of the Rumanian Society of Neurology, Endocrinology, and Forensic Medicine will be held at Bucarest from October 4th to 7th, under the presidency of Professor G. Marinesco, when the following subjects will be discussed: the physiopathology of hysteria, introduced by Professor Marinesco; cerebral atrophy, introduced by Dr. J. Nicolesco; experimental physiology of the cerebellum, introduced by Dr. O. Sager; the suprarenal cortex, introduced by L. Rallif; and encephalography and ventriculography, introduced by Dr. A. Moruzi. Further information can be obtained from Dr. J. Nicolesco, 50, Rue Plantelor, Bucarest 4.

CORRESPONDENCE

The G.M.C. and the New Curriculum

SIR,—Perhaps you will allow me, as one who has been identified with medical teaching for over forty years, is now retired from professional work, and is free from any intimate association with the work of the British Medical Association, to comment on the present position of the above subject as revealed by the recent decision of the General Medical Council and the criticism of the same which has appeared in your editorial and correspondence columns.

The perusal of the report of the final discussion in the General Medical Council, as given in your *Supplement* of June 6th, appears to indicate (1) a striking amount of uneasiness in the minds of the skilled general practitioner members of the Council as to the value of the new curriculum; and (2) evidence of an appreciable amount of doubt, in the minds of some members at least, in regard to certain details. These details were not specifically mentioned, and the definition of a detail is left uncertain. It is, for instance, of interest to note that one member, while dissociating himself from any "criticism" of the new arrangements proposed, went on to refer to the "increased overloading of the curriculum with specialties. No fewer than nineteen specialties or special methods of treatment were mentioned by name in this report. If only a fortnight were given to each of them they would occupy the best part of a year, to the detriment of general instruction in medicine, surgery, and midwifery. The two most important things for the general practitioner were medicine and midwifery. Surgery was of less importance, and a great deal of the time spent by the student in the operating theatre was wasted." This appears to me to be precisely the type of "criticism" which is urgently demanded, and it bulked largely in the admirable report and recommendations of the B.M.A.

There is no reasonable doubt that the development and growth of the specialties in the last few decades has led to a loss of correct perspective of their true value in the education of future general practitioners. A fresh stock-taking has become imperative, a differentiation being made between the instruction suitable for the average student and that suitable for more advanced study. In their much too restricted adoption of the recommendations for reform made by the B.M.A. the G.M.C. have undoubtedly failed to grasp a great opportunity. It is probably safe to say that ninety-nine out of a hundred practitioners will, on consideration, cordially endorse the masterly contribution to the discussion by Dr. E. K. Le Fleming recorded in the *Supplement*. In relation to that contribution it is relevant to say that at the many meetings of medical teachers which I attended during my fifteen years of office as senior physician to the Royal Infirmary, Edinburgh, and senior lecturer in clinical medicine in the Edinburgh School—and I know no better school—the question of the real needs of the general practitioner and the relation of projected changes to these needs received too scant consideration.

A further word on another fundamental issue—the adequate teaching of preventive medicine. In my experience it is beyond question that the new recommendations passed by the G.M.C. in 1922 as a result of a three years' investigation initiated by a motion in the Council in 1918 towards promoting the more effective teaching of preventive medicine have proved little more than pious resolutions. It is possible that this result has largely arisen from the limitations imposed on the Council under the present Medical Acts. In any event much more is necessary. The subject was reviewed at the recent Health

Congress (Royal Institute of Public Health and Institute of Hygiene) in Edinburgh, where, after a lengthy discussion, the following resolution was unanimously passed: "That this meeting is of opinion that the time has arrived when the curriculum for medical students should include more specific training in preventive medicine, and urges the General Medical Council to revise the courses accordingly," and it was agreed to forward this resolution to the General Medical Council and to the Privy Council. The final findings of the G.M.C., since published, will fail to satisfy a very large number of practitioners who have given consideration to this subject.

The reform of the curriculum necessary is "not patchwork, but something like a recasting of the whole of our studies, that only such be kept as help towards broad educational ends," as Dr. C. M. Wilson of St. Mary's Hospital wrote in your columns under the heading "The Student in Irons" in 1932. A recasting of some of the students' textbooks is an equal necessity. The query presented by Dr. Wilson, "Can we look to any committee to show us a way out of the tangle?" is a very pertinent one. The answer, in my opinion, is definitely in the negative, if such a committee is composed too exclusively of medical teachers. More consideration and weight should attach to the opinion of skilled general practitioners and of medical officers of the public health service. In my judgement the recommendations in the B.M.A. report are, in general, to be commended as likely to meet the needs of future general practitioners much more effectively than the new curriculum. The issue is one of the greatest importance to the public and to the nation.—I am, etc.,

CHALMERS WATSON, M.D.

Drem, East Lothian, June 13th.

SIR,—Your leading article on the above subject in the *Journal* of June 6th gives one furiously to think. The crux of the whole matter would appear to be the question of "time," especially if the additions now proposed are to be assimilated with any prospect of success.

Two years ago, at a public meeting in Edinburgh under the auspices of the Students' Representative Council, I ventured to discuss the proposed changes in the medical curriculum. Under the prevailing system in the Scottish Universities the intending medical student has first to negotiate an entrance examination in Latin, English, etc. —in one phrase, general knowledge—for which certain alternative certificates are accepted. Then, if he is successful, comes the pre-registration examination in chemistry and physics. That surmounted, he is eligible to enter the university portals. Then comes the first professional examination, consisting of chemistry, physics, botany, and zoology. Now these subjects are not confined to medical students; they may be taken as part of the science or arts course as well. Here, it would appear, redundancy and overlapping occur. The subjects of the pre-registration examination are repeated in the first professional.

The contribution I would urge is the abolition of the pre-registration examination, and a high standard established in the first professional examination subjects, the chemistry one to include biochemistry, and biology added. The examination in these five subjects should be passed before the student enters the university on his medical course of five years. Time being thus available the sense of proportion would then operate to advantage.

I agree entirely with your remarks regarding anatomy. What might be termed "the hypertrophy of anatomy" should be severely tackled, partly because of its redundancy and partly since it absorbs time which might be more profitably allocated, unless the student is purely surgically minded. Take, for example, the subject of pharmacy. The weakness and ignorance of the average student's knowledge of prescribing, when he finishes his university course, hardly requires to be stressed. As a result he resorts to ordering proprietary articles and compressed ready-mades, and he will have practised but for a short time before being summoned to the bar of his Panel Committee for excessive prescribing. Can he be surprised if the laity and chemists who constitute these bodies under the National Health Insurance Act adversely criticize his skill on paper?—I am, etc.,

D. M. MACDONALD, M.D., F.R.C.P.Ed.

Alloa, June 8th.

SIR,—Is there not a great deal of rubbish spoken, and written, regarding the pre-registration requirements that are to be demanded from the medical student of the future? What were the "cultural" qualifications of the present members of the General Medical Council before they commenced their medical careers? Mine were a great capacity for devilment, a thorough grounding in the joys to be extracted from the writings of R. L. Stevenson, Scott, Dickens, and such like, a little Latin, less Greek, and a smattering of chemistry and physics. While some of the members of the G.M.C. will hold up their hands in horror, I am safe in writing that my patients have been none the worse for my pre-registration ignorance. I doubt if the "cultural attainments" of 95 per cent. of my generation have been better, and during my life I have seen greater progress being made in medicine than was made for the previous 2,000 years, or is likely to be made during the next 500 years.

Might I ask where did Dr. A. F. Wilkie Millar get his information to justify his statement that "the need for training in scientific observation and reasoning is just where one sees deficiency to-day"? High-sounding words, with not a particle of evidence or truth to back them up! And Dr. Arthur King—what is his evidence for the statement that "the socialization of the practice of medicine by the national health insurance has tended towards its mechanization at the expense of its personal and profound nature"? What does he mean? How long did he take to evolve words so full of nothing, and with not one particle of evidence to justify the insinuation which he tries to convey to your readers?

If a boy of 18 years of age has passed his preliminary examination, based as it is upon the present high standard of secondary education, and if he satisfies the authorities that he has a basic knowledge of chemistry, physics, and possibly biology, he has quite enough "culture," a great deal more than the present pundits of the G.M.C. had at his age; and there should be vigorous protest throughout the profession against this overburdening of the brains of boys and girls in their teens, and the financial and mental worry which all this impracticable and theoretical nonsense will inflict upon the parents of the future. Culture is born in one, and not the product of such. What about making it a condition of membership of the G.M.C. that a "cultural" examination should be passed? I should like very much to be appointed an examiner!—I am, etc.,

E. K. MACKENZIE.

Tain, June 14th.

Treatment of Gastric and Duodenal Ulcers

SIR,—Dr. Letheby Tidy has written a most excellent summary of the present position of the treatment of gastric and duodenal ulcers (*Journal*, June 6th, p. 1143), but there are two points in his paper which make a special appeal to me and appear to need elaboration.

1. *Criteria of a "Cure."*—He elaves this completely in the air. Surely if (*a*) symptoms disappear over a period of a year, (*b*) an ulcer crater radiologically demonstrated radiologically disappears, and (*c*) return to normal activity

occurs, a cure can be claimed, even if in later years there is a recurrence, due probably to the patient's own indiscretions.

2. *Social Status and Occupation.*—This is dismissed in a short paragraph, but to me therein lies the fundamental difference of selection between medical and surgical treatment. The leisured classes can adequately carry out the prolonged and accurate routine of two-hourly meals, rest, and alkalis and the modified diet of convalescence. In the worker this is only possible in its entirety during his or her stay in hospital. Dr. Tidy's Table IV of incidence among medical men (who, though by no means among the "leisured classes," can carry out their medical contracts both as patients and as doctors) shows a favourable percentage for medical treatment. It is even greater in financially more favoured persons. Prolonged medical treatment and accurate attention to diet are extremely difficult among the workers, and to them, I think, surgery offers a better chance and a quicker return to an earning capacity.—I am, etc.,

DESMOND MACMANUS, M.B., B.S.

London, S.W.1, June 12th.

Individual Medical Defence

SIR,—It is to be hoped that the suggestions for the reorganization of individual medical defence which have appeared in your correspondence columns as a result of the timely warnings of Dr. Crosby (May 23rd, p. 1077) will receive due attention from the profession in general. As it is presumably impossible to reproduce the letter in question on the wrapper in which the *Journal* is posted it may not have come to the notice of as large a number of our members as it deserves.

The sequence of medico-legal reports which appear in the *Journal* leads one to consider whether some form of compulsory insurance of indemnity might not be in the best interests of the profession and of the public. It is amazing to find men who have been practising for years without realizing even the financial embarrassments to which they may be exposed as the result of what may appear to be a trivial incident in the day's work.

Membership of a defence association entirely concerned with the affairs of medical practitioners and with ample financial reserves is surely the most efficient and economical method of securing immunity and peace of mind. Unity is essential for maximum efficiency. Many of us consider that the interests of private motorists would have been better served by a fusion of the two largest motoring organizations and the elimination of the somewhat conflicting interests of its commercial and trade members. The alleged impediments of "vested interests" and certain social considerations should have no parallel as obstructions to the formation of one united defence association. I believe that if continuity of service on the executive or governing body of such an association were made impossible it would command increased confidence amongst its members.—I am, etc.,

Spalding, Lincs, June 12th. ALEX. S. WILSON.

Urinary Tract Complications in Prolonged Immobilization

SIR,—It is perhaps true, as Dr. L. A. Key says in his article "Urinary Tract Complications in the Prolonged Immobilization of Children" (*Journal*, June 6th, p. 1150), that some orthopaedic textbooks make little mention of urinary complications arising in cases undergoing prolonged immobilization in dorsal decubitus, but it must not be thought that the subject is treated with indifference by the orthopaedic surgeons themselves, for the reverse is the case. The probability is that orthopaedic textbooks do not deal fully with this subject because it comes into the province of the general surgeon.

For many years urinary lesions have been recognized by orthopaedic surgeons as well-defined complications of the prolonged immobilization of cases on spinal frames, and as far as my experience of orthopaedic hospitals extends they have been adequately dealt with. The subject, too, has stimulated a considerable amount of research work along the lines of causation and prevention, and, benefiting from the valuable light these researches have thrown on the condition of stone formation, many orthopaedic hospitals to-day so modify their treatment as to render the possibility of stone formation and other urinary complications in these cases negligible. That posture has a definite effect on the deposit of solid substances in the kidney is well borne out by the fact that they so often disappear after the patient relinquishes the recumbent position. Serial radiographs taken at intervals show very graphically the progressive disappearance of the shadows of urinary deposits. Presumably, these are the cases in which the deposit is soft or of the "mud" type. Radiographs of other cases in which calculi are present sometimes show a change in position of the stone with change in position of the patient. I have seen one series where a small calculus passed upwards from the bladder to the kidney when the patient's position was changed.

At the Liverpool Open-air Hospital for Children at Leasowe considerable clinical investigation into this subject has been done in the past two and a half years by Dr. McEwan, the senior medical officer. The incidence of urinary complications in Leasowe cases undergoing prolonged immobilization in the dorsal decubitus, whether for tuberculosis or other orthopaedic conditions, is not nearly so high as the 19 per cent. in Dr. Key's cases. For two and a half years now all cases of spinal caries have been turned into the prone position in plaster-of-Paris shells at regular intervals of two weeks, spending from four to ten hours in that position. In none have urinary complications occurred—a very hopeful circumstance if it indicates, as it probably does, that with this small degree of extra attention all cases will escape mud or calculus formation.

One aetiological factor of importance in connexion with stone formation in the kidneys not mentioned in Dr. Key's article probably merits attention also, and that is the nature of the local drinking-water supply and the amount of calcium in it, for it is reasonable to assume that water with a high calcium content is likely to be more productive of stone formation than water with little or no calcium.—I am, etc.,

A. CAMERON ARMSTRONG, M.Ch.Orth., F.R.C.S.Ed.

Liverpool, June 10th.

Significance of a Positive Wassermann Reaction

SIR,—I have read with interest Dr. Elliott's article on "Third-generation Syphilis" in the *Journal* of June 13th (p. 1206). I would like to suggest that the title of necessity commits one to the view that the presence of a positive Wassermann reaction means that the patient who shows it has syphilis at the time.

This is a view which I personally have felt for many years to be at least doubtful. It leads to clinical absurdities. Let us say for the sake of argument that a man is brought into a casualty room for a broken leg. An energetic casualty officer takes a sample of blood for a Wassermann test in a routine way. The test is found to be positive. Is that man to be submitted to a course of anti-syphilitic treatment there and then? Is it further to be suggested that he is suffering from syphilis? And, finally, has his broken leg anything to do with this disease? This is, of course, a quite ridiculous line of argument, but

it appears to me no more ridiculous than many of the clinical pictures which one sees from time to time ascribed to syphilis on no other grounds than a positive Wassermann reaction in the blood.

Dr. Elliott says in his article that Mrs. Z. (the daughter of the original case) had no clinical signs of the disease, yet she was submitted to a full course of anti-syphilitic treatment. This does not appear to have altered her serum reaction. Her offspring also had no clinical signs of the disease, but had a positive reaction which was rendered negative by treatment.

In 1928, in a paper in the *Practitioner*, I drew attention to the two types of case represented by these two reactions: one which is serologically "fast," and the other which I called the "pendulum" type because the serum reaction can be made to alternate between positive and negative by treatment. It appears to me that there is a danger of over-emphasizing the value of a Wassermann reaction in late cases, and especially in congenital cases, where I have seen a positive reaction in a patient of 34 become negative *without* treatment.

I feel that Dr. Elliott's interesting paper really referred to a case of third-generation seropositive Wassermann reaction. The change in the blood proteins which is the basis of the Wassermann reaction may quite well be such as to be more or less fixed for that individual, and I see no reason against the further possibility that such a protein pattern may be directly transmissible through the placental membrane. This appears more likely than that a living spirochaete can exist through three generations, and in the last one invade the ovum.

The whole question of the transmissibility of syphilis is the most fascinating problem of this protean disease, and if each observer would go to the trouble of recording cases as carefully as Dr. Elliott has done some of the existing dubiety might be cleared up.—I am, etc.,

Sheffield, June 13th. E. FRETSON SKINNER.

Complete Transposition of the Viscera

SIR,—I am anxious to obtain information about this condition, which I believe to be inherited as a Mendelian recessive, and shall be much obliged if anyone who sees a case will send me the following data. Are the parents blood relations or not? If they are blood relations, are they first cousins, and, if not first cousins, what is their exact relationship? I should also like to know the sex of the patient, the number and sex of the normal brothers and sisters, whether the parents are normal, and whether there is a history of a previous case in the family. —I am, etc.,

E. A. COCKAYNE.

91A, Harley Street, London, W.1, June 11th.

Percentage of Alcohol in the Blood

SIR,—Dr. H. Kenneth V. Soltau (*Journal*, June 13th, p. 1231) states: "I believe that the more the problem is investigated the more will it be found that behaviour differs because of the variation of the blood-alcohol content." From this he would appear to agree with me that, so far, it has not been proved that incapacity in alcoholism varies with the alcoholic content of the blood. If this is so, I fail to see how a blood test can be considered conclusive, as he has suggested.

There is a further objection to the use of blood tests in the case of alcoholic drivers. It has been stated that a percentage of alcohol in the blood of 0.1, or over, should be accepted as conclusive evidence of unfitness, but it also has been stated that some people with lower percentages, even as low as 0.088, have been found to be "under the influence, etc." Are those cases with a blood-alcoholic content of less than 0.1 per cent. who are clinically unfit to drive a car not to be dealt with? That some persons with a blood-alcohol content of 0.08 per cent. have been found to be "under the influence, etc.," and others with the same percentage have not been so found is indication of the uselessness of the test for the purposes of the law.—I am, etc.,

London, N.W.8, June 13th. WM. M. FAIRLIE.

Familial Haemoptysis of Unusual Aetiology

SIR,—Rarely one meets with instances of haemoptysis the origin or aetiology of which is quite obscure. In such cases tuberculosis, mitral stenosis, malignancy, purpura haemorrhagica (Rivière, Lusitanus, Werlhof), haemophilia, thrombasthenia (Glanzmann), or constitutional thrombopathy (Jürgens and Willebrand), leukaemia, hepatic cirrhosis, etc., are readily excluded.

The occurrence recently of attacks of haemoptysis in two patients—members of a family previously reported by me as instances of "heredofamilial angiomatosis with recurring haemorrhages (Goldstein)" or Rendu-Osler-Weber's disease [*Arch. Int. Med.*, xlviii, Part I, 836; *Trans. Amer. Therap. Soc.*, 1932, 47; *La Riforma Medica*, lii, 256; *British Medical Journal*, 1936, i, 721 (family tree with eighteen affected individuals); *Arch. Derm. and Syph.*, xxvi, 282]—leads me to make these few comments on familial haemoptysis.

Similar cases of haemoptysis have been previously noted by R. J. Graves (*System of Clinical Medicine*, p. 268, 1843, Dublin, Fannin and Co.), Charles Elam (*A Physician's Problems*, p. 28, 1869, London, Macmillan and Co.), Antonio Lombardi (*Il Tommasi*, Naples, iv, 202), P. Ste. Marie (*La Revue Médicale du Canada* (Montreal), viii, 34), E. Libman and R. Ottenberg (*Journ. Amer. Med. Assoc.*, lxxxi, 2030), A. Arrak (1923, Dorpat), H. Mantchik (*Schweiz. med. Woch.*, lii, 949), and V. Cordier, P. Lagèze, and P. L. Mounier-Kuhn (*Lyon Méd.*, clvi, 51).

K. Ullmann of Vienna mentions (in reporting his first case in 1899) haemoptysis as occurring in his case, a woman with angiomatosis who was first seen in Hebra's clinic in 1892, and who died in 1899 from an attack of pneumonia. She had telangiectases on the face, and on the tracheal and bronchial mucous membrane, which bled. Similar instances have been noted by T. FitzHugh, jun. (Philadelphia), Aubertin and Lévy (Paris), H. I. Goldstein (Camden), and others.

Kofler's (*Wien. klin. Woch.*, xxi, 570) patient had telangiectases on the face, lips, nose, tongue, palate, posterior wall of pharynx, and the arytenoid cartilage. Kofler states that haemorrhages from the lesions on the posterior wall of the pharynx and in the larynx might be confused with true haemoptysis.

These instances of familial haemoptysis are probably similar in aetiology to the cases of familial haematuria ("renal haemophilia") reported by H. Senator (1891, 1896), Atlee (1901), Guthrie (1902), Pearson (1904), Apert (1907), Aitken (1909), Kendall and Hurst (1912), Hurst (1923), Barford (1926), and W. E. Foggie (1928), and much like the gastric haemorrhages noted by W. H. White (1912, *Gastrostaxis*), K. Ullmann (1896, 1900), L. N. Boston (*Amer. Journ. Med. Sci.*, clxxx, 798), M. S. Ersner (1930), Guttmann, Laval, and Schlumberger (1932, Paris), Ed. Benhamou (*Les Gastrorrhagies*, December 16th, 1933), Leo Kessel (New York, *Journ. Amer. Med. Assoc.*, xcvii, 1058), and others.—I am, etc.,

HYMAN I. GOLDSTEIN, M.D.

Camden, New Jersey, U.S.A.,
May 30th.

Treatment of Rheumatoid Arthritis

SIR,—Few who have had experience of the use of gold salts, either in pulmonary tuberculosis or, more recently, in rheumatoid arthritis, will question their value in selected cases. At the rheumatic unit at St. Stephen's Hospital and at the St. John Clinic and Institute of Physical Medicine I have, in conjunction with Dr. J. S. Lawrence, the medical registrar of the St. John Clinic, been engaged for some time in assessing, by means of carefully controlled observations, the value of treating rheumatoid arthritis by gold salts.

It has been our practice first to pay the necessary attention to existing focal sepsis and then to start these cases with adequate physical treatment, both of a local and of a general nature. If, after an initial period of such treatment, varying from one to three months, according to the nature of the case, no satisfactory progress has been made, a course of gold salts, in the form of solganol B oleosum has been begun. An equal number of cases have been selected for control purposes.

The dosage has been carefully regulated, and we usually give weekly doses, starting with 0.01 gram and gradually increasing to a maximum of 0.1 gram until 2 grams in all have been given. After an interval of six weeks or more a similar course is frequently repeated. We have made a point of never giving this treatment in rheumatoid arthritis without temperature, urinary, and haematological controls, paying particular attention—in so far as the blood is concerned—to the sedimentation rate and white cell and differential counts.

Our results in such selected cases have been eminently satisfactory, and stand out in striking contrast to the negligible results achieved in the control cases, where injections of sterile almond oil were given.

While, however, we stress the value of gold salts in the treatment of this disease, we are of the opinion that, speaking generally, no single form of treatment is in itself adequate. It must not be forgotten, moreover, that the indiscriminate use of gold salts, without adequate precautions, is fraught with danger, and to a far greater degree in rheumatoid arthritis, in my experience, than in pulmonary tuberculosis. One has only to refer to the cases recently reported in the medical press of agranulocytosis following the use of gold salts in rheumatoid arthritis to find support for this assertion. Even with the most careful precautions accidents are still known to occur. While we should therefore like to issue a warning against the wholesale and indiscriminate use of gold salts in rheumatoid arthritis generally, and while we would not perhaps go quite so far in our enthusiasm as Dr. Hartfall and Dr. Garland (*Journal*, June 13th, p. 1232), we disagree entirely with Dr. Thomson (June 6th, p. 1171) when he says that "the treatment is more or less experimental and of doubtful value." Our carefully controlled results, which we hope to publish shortly, will very soon disprove this statement.—I am, etc.,

London, W.1, June 13th. PHILIP ELLMAN.

Treatment of Varicose Diseases

SIR,—As there seems to be some difference of opinion, even between such authorities as Mr. Dickson Wright (*Journal*, May 9th, p. 959) and Dr. Stuart McAusland (May 30th, p. 1132), as to whether varicose veins should be injected from below or from above, I would like to point out that both methods are correct, but that it depends on what solution is employed as to which method should be used. Quinine and urethane solution, being lighter than blood, tends to rise in the vein, and the salicylates, being heavier, tend to sink. Thus the desired effect is caused in each case by an ascending or descending wave of sclerosing fluid. Quinine and urethane should therefore be injected at the lowest part of the varicosity, and such solutions as lithocaine at the uppermost.

The reasons I prefer using lithocaine as a routine sclerosing medium in the Varicose Vein Clinic at the Royal Waterloo Hospital, where some two thousand injections are done in the year, are two: quinine nearly always produces some dizziness and even fainting attacks, and we have not the accommodation for some forty fainting women to lie on couches; the wave of lithocaine flowing downwards tends to pass into the branch veins and also into the veins communicating with the deep circulation, and a more widespread sclerosing effect is obtained than by quinine, which travels upwards in the main trunk alone.

I always employ quinine, however, when there is any history of phlebitis, and inject it simultaneously with lithocaine in the treatment of large veins—the "twin injection" introduced by Maingot. I have never found it necessary to operate.—I am, etc.,

London, W.1, June 10th. R. SIMPSON HARVEY.

SIR,—I have found, as is common experience, that the injection treatment of varicose veins cures many cases and effects improvement in most. But why are they not all cured? The denouement of the mystery may be afforded by the following:

I had treated successfully varicose veins in the leg of a young adult; I then embarked upon a course of treatment for the varicose condition of the thigh. The whole saphenous vein was greatly dilated, and from the lower half there emerged a network of varicose veins. I intended following the complicated technique advocated by one author (tourniquet, patient standing up, patient sitting down, etc.), but both the patient and myself became entangled in this acrobatic procedure. I looked for an easy way out. I injected 3 c.cm. of sodium morrhuate into the distal end of the vein just below the network. I had a feeling that the solution would "fly up." So it did. Instinct made me put a finger on the vein just above the network, and fear made me keep it there. The finger there saved the situation. The whole network became immediately collapsed and has been "conspicuous by its absence" ever since.

I tried this method again with equally satisfactory results. I repeated the procedure in injecting a large single varix of the leg, for which excision is ordinarily recommended. By placing a finger both above and below the varix to imprison the injection a cure is assured. I propose—at the next opportunity—to "isolate" the individual "venous nodule" by tying a thin rubber band both above and below it before injecting. Previously, I trusted to luck that the fluid would not escape either above or below when injecting the sclerosing agent.—I am etc.,

Glasgow, June 10th. J. KELVIN, M.B.

Acute Otitis Media

SIR,—I recently drew attention to what I considered were fallacies in an article by Mr. A. Campbell on acute otitis media (*Journal*, April 18th, p. 788).

It is interesting to compare the figures and facts given in the report of the medical officer of health of the London County Council on the measles epidemic, 1933–4. Out of 400 unselected measles patients only 105 did not have some degree of otitis media. No fewer than 204 are described as "mild otitis," and these all resolved without perforation. Many of the drums in these cases, according to Mr. Campbell, should have been incised, as they were bulging. The remaining ninety-one cases had otorrhoea,

in many bilateral. Nevertheless, myringotomy was only done thrice. Out of this total of well over 100 suppurating ears only six required a mastoid operation. This should be compared with the 7 per cent. which Mr. Campbell proudly quotes as attainable by his method of early myringotomy.—I am, etc.,

Liverpool, June 13th. ALEX. TUMARKIN.

Social Medicine and Income Tax

SIR,—Your leader on "Simplifying the Income Tax" in the *Journal* of April 18th, and the correspondence in the *Supplement* of the same issue, prompt me to refer both you and your correspondents back to my letter published in the *Supplement* of December 28th, 1935, under the heading "True Social Medicine." My scheme may be described, and has been described by my friends, as too idealistic and impossible of achievement in our time. With the latter I am inclined to agree, but the idea is no less feasible than the abolition of slavery was 150 years ago. In both cases the obstacle is found in vested interests.

I think you will admit that both income tax and panel troubles would cease for our profession if my scheme were adopted. Income tax troubles would cease for *everybody* if my more generalized scheme were adopted. (See "God in the World" in the *New Century*, July, 1935, and "Money" in the *Oriental Economist*, September, 1935.) —I am, etc.,

Durban, Natal, May 15th. C. LUNDIE.

Zinc Ionization for Hay Fever

SIR,—I regret this need to protest against the report circulated to the lay press of a "99 per cent. cure" for hay fever by zinc intranasal ionization. The statement emanating from and supposedly originating in the physiotherapy department of one of our centres of medical education is quite inaccurate and misleading.

I have treated hay fever by this method since 1925. In June, 1931, in your *Journal* I was the first to report a description of an intranasal ionizer made after my design by Theodore Hamblin Ltd. Again in April, 1932, I published my results of the treatment of ninety-one cases of hay fever, which bore out the hopeful prognosis suggested in my earlier communication. In March, 1935, in the *Medical Press and Circular*, I published a further communication, entitled "The Value of Intranasal Ionization," and concluded this article with the following statement:

> "In 5 per cent. of the cases successfully treated during one year there was failure in the succeeding year. The results depended on the selection of the cases and the intensity of the attacks. This varied each year with the prevalent climatic conditions."

The use of intranasal ionization by my colleagues at home and abroad since my original publication has, according to their report, been satisfactory. In my own experience over a long period with some 600 cases I cannot claim more than 60 per cent. "relief"—relief that is well worth having—but only an occasional case that could be described as permanently cured.—I am, etc.,

London, W.1, June 16th. PHILIP FRANKLIN.

Laryngeal Vertigo

SIR,—The following case presents features similar to the one reported by Dr. Douglas K. Adams in the *British Medical Journal* of April 4th (p. 685).

The patient, a man aged 55, had suffered intermittently from bronchitis ever since childhood, and was seldom free from a cough. He was treated for an attack of bronchitis in September, 1934, and it was noted that his chest was emphysematous and immobile. In January, 1935, his cough became a little more severe than usual, and on January 26th he began to suffer from fainting fits, many of which were witnessed by his wife. He would begin to cough, and within a second or two would fall to the ground unconscious. He would immediately regain consciousness and rise to his feet. This occurred three or four times a day. On one occasion he fell in the street and was assisted to his feet by a passer-by.

The attacks of coughing which preceded the unconsciousness were not severe, and there was no dyspnoea or cyanosis. There were no clonic movements. There was no history of fits during childhood, and he had never previously had seizures of this nature. An intimate friend of the patient had died suddenly on January 25th, the day before the seizures commenced, and this was troubling his mind. The case was a puzzling one, and it was regarded as primarily a neurosis occasioned by the death of his friend.

The fits continued at the rate of two or three a day. On February 4th a mixture was prescribed containing ephedrine and tinct. opii camph. There have been no more seizures since then, though in March, 1936, he had a severe attack of asthma, which lasted four weeks.

—I am, etc.,

Bunbury, Western Australia, May 15th. MICHAEL KELLY, M.B., B.S.

Family Medical Insurance

SIR,—While sincerely appreciating the notice you have taken of my book *Family Medical Insurance* (*Journal*, June 13th, p. 1208) I should like to make it clear that the scheme I have presented is not intended to be a series of final conclusions. Its objective is the provision of a complete public medical service for all, without restrictions. It is true, as you say, that many schemes are now in existence, and only await improved financial conditions for their extension. But I suggest that an important reason for the lack of funds is the existence of *many* insurance schemes with their unnecessary competitive element and overlapping. Unification is badly needed, and one scheme for the population as a whole should be better than many—better even than two—provided it is built up from what already exists and provided the result is a complete medical service. It is here that the British Medical Association scheme, as it now stands, seems to me to fall short of the ideal.

While realizing the high quality of the services of general practitioners, I consider that they are unreasonably handicapped by having to work in an impossibly large field. The development of modern medicine has made it impossible for any single practitioner to render services that will be completely adequate or such that the patient has the right to expect. Again, the economic conditions under which many (if not the majority of) practitioners work to-day seriously affect the quality of service.

I hope that despite its defects my book will do something to increase the discussion of these problems to a constructive end—that end being a national and complete medical service without restrictions. Above all, the problems must no longer be shelved. If a scheme is produced and supported by professional opinion and by lay demand, financial conditions will be found suitable. "Given courage and vision such a scheme is practicable" I wrote, and now repeat. All doctors realize that great reforms are pending, and surely it is better for the profession through its appointed representatives to take the initiative than to await the launching of a scheme by an uncompromising State. May I through your columns plead for support and help?—I am, etc.,

London, W.1, June 13th. J. LACHLAN-COPE.

Obituary

RICHARD TIMMIS TURNER, M.D.

Past Chairman, Crewe Division, British Medical Association

On Saturday, June 6th (writes Dr. LIONEL PICTON), the great church of Nantwich was packed to overflowing. Dr. Turner was dead. The concourse at the funeral gave some measure of what his life has meant in that South Cheshire country. How many in the building had he brought into the world? How many operated on? How many treated? He was a general practitioner in the old and full sense, and his range of service had brought him into touch with every soul there. As surgeon, as soldier, as sanitarian, as Poor Law doctor, as magistrate, and, above all, as a G.P. he had exercised for forty years an influence upon every section of the life of the community to which he belonged. For he belonged to his place. His family were settled at Wybunbury, four miles from Nantwich, and there he was born sixty-five years ago, the third son of Mr. N. C. Turner. He went to the Nantwich and Acton Grammar School. The "Head" was the Rev. S. Hirst; and as Turner, in his later busy years would read Virgil "because it was restful when he was tired" of an evening, his school Latin must indeed have been thorough. For six months also he was at school in Germany, and he spoke German easily ever after. His university was Manchester, and he qualified there as a doctor at the age of 21. House-surgeon at Manchester Royal Infirmary, a house appointment at Crumpsall Fever Hospital, and house-surgeon at Chester Royal Infirmary were his three junior posts, and they endowed him with the clinical wisdom of a very practical tradition.

When he returned to Nantwich he was still a very young man. The practice he bought was at Wybunbury. That he should propose to work the practice from Nantwich astounded the vendor, but work it he did, to some purpose, and as he took over the post of medical officer of health of the great rural district of Nantwich (earlier held by Dr. Fox and Dr. Vacher, the first Cheshire County M.O.H.) he had his hands full. From that time to his death he sustained this double duty. He was a skilful operator, and the Nantwich Cottage Hospital, the inception of which owes much to him, was the scene of his later labours. He was a combatant officer in the Volunteers and in the 7th Cheshire Territorials, and was a captain when the war began. After some time he was transferred to the R.A.M.C. (T.). From Gallipoli he was invalided, and on home service became M.O. i/c Stockport Division of the 2nd Western General Hospital. Later he was in command of the Prisoners of War Hospital at Oswestry, and at the end of the war was lieutenant-colonel. He was a Freemason: Past-Master, King's Friend Lodge, Nantwich, and had passed through the chair of the Grosvenor Preceptory of Knights of the Temple, Chester, and the Stanhope Chapter of Rose Croix, Chester, and the Chapter of Faith, Crewe. He was founder-president of the Nantwich Rotary Club, and a trustee of the old and interesting Nantwich charities, the Wood-Garnett Charity and Sir Edmund Wright's Charity.

The great events in the lives of such men are not notable. They are innumerable, but pass unnoted. They happen in obscure places: at a confinement, perhaps in mid winter under the thatch of a country cottage, or at an emergency operation in a farmhouse kitchen. But one or two stand out: a day at Eaton Hall, when, as the junior subaltern of a Cheshire Territorial battalion, Turner received a colour at the hands of King Edward VII; another—military, too, but how different—was that day at Gallipoli when he landed with his battalion at Suvla Bay. The last belongs to another category, and the audience numbered only fifteen. He was presiding about a week before his death at a meeting of the Cheshire Maternal Mortality Committee. In the old black-and-white house where it met, a few doors from his own beautiful home, he sat at the head of the great refectory table, a contentious matter under keen debate. The issue lay between "careful discretion" and "brave adventure," and the voting was eight to eight. Without a second's hesitation he gave his casting vote for "adventure," and his frank and instant statement of his reasons disarmed the losing side and enlisted them on his. This directness and simplicity, so characteristic of him, was combined with a rare appreciation of the remoter results of action. He took long views: his mind was a beam of light penetrating the shadows.

As vice-chairman of the Cheshire Panel Committee—in late years, on account of the chairman's age and infirmity, the conduct of affairs fell to him—Turner has held a steadying influence in medical affairs, always genially exercised. "Now we come to the swellings of Jordan," he would say at the Drug Committee when the great list of emergency treatment claims had to be assessed; and such phrases betokened two things: the thorough grounding he had had in the Bible and that his tenacious mind forgot nothing it had once mastered. A great general practitioner has passed away.

L. J. P.

The following well-known foreign medical men have recently died: Dr. LEGRY, honorary physician to the Paris hospitals and member of the Académie de Médecine; Professor J. P. KARPLUS, an eminent neurologist of Vienna, aged 70; Dr. PANAGINO LIVIERATO, professor of medical pathology at Geneva, aged 76; Dr. FRIEDRICH MOLTENIUS, a Berlin otologist, aged 43; Grand Officer Professor G. SORGE, an eminent surgeon of Naples, aged 76; Geh. Med. Rat Professor FRIEDRICH KRAUS, director of the second university medical clinic in Berlin, aged 78, author of books on the constitution and personality; Dr. GEORGES KÜSS, an eminent French phthisiologist; and Dr. WILLIAM LAWRENCE CLARK, formerly president of the American Academy of Physiotherapy, aged 59.

The Services

DEATHS IN THE SERVICES

Colonel Bhola Nauth, C.I.E., Madras Medical Service (ret.), died on January 31st, aged 70. He was born at Lahore on January 23rd, 1866, and was educated at the Lahore Medical College, where he graduated L.M.S. of Punjab University, after which he came to England, entered St. Thomas's Hospital, and took the L.S.A. in 1890. He entered the I.M.S. as surgeon lieutenant on July 29th, 1893, rose to the rank of colonel on January 11th, 1919, and retired on April 14th, 1924. He took the M.R.C.S. in 1908 and the D.P.H. of the London Colleges in 1910. He served during the war of 1914–18, was mentioned in dispatches in the *London Gazette* of August 15th, 1917, and was given the C.I.E. on August 25th, 1917. He was also appointed Honorary Physician to the King, on February 14th, 1922.

Lieut.-Colonel Samuel Richard Wills, R.A.M.C. (ret.), died on March 15th, aged 75. He was born on September 14th, 1860, was educated at the Carmichael School, Dublin, and took the L.R.C.S.I. in 1882 and the L.R.C.P.I. in 1884. He entered the Army as surgeon on May 30th, 1885, became lieutenant-colonel after twenty years' service, and retired on August 30th, 1911. He served on the North-West Frontier of India in the Hazara campaign of 1891 (medal with clasp), and in the Tirah campaign of 1897–8 (medal with two clasps); and in the South African War from 1889 to 1902, when he took part in the actions of Vaal Krantz, Tugela Heights, and Spion Kop, and in the relief of Ladysmith, and later in operations in the Transvaal (Queen's medal with four clasps, King's medal with two clasps). After retirement he rejoined, on August 6th, 1914, for service in the war of 1914–18.

Colonel John Powell, D.S.O., late R.A.M.C., died at Iffley, Oxford, on June 8th, aged 59. He was born at Dublin on June 30th, 1876, the son of John Clarke Powell, and was educated at Trinity College, Dublin, where he graduated M.B., B.Ch., and B.A.O. in 1899. Entering the R.A.M.C. as lieutenant on April 25th, 1900, he became lieutenant-colonel on December 26th, 1917, received a brevet as colonel on June 3rd, 1919, and retired, with the rank of Colonel, on December 4th, 1928. From September, 1909, to March, 1916, he was seconded for service with the Egyptian Army. After retirement he was employed at Oxford. He served in the South African War from 1900 to 1902, when he took part in operations in the Transvaal, and received the Queen's medal, with three clasps, and the King's medal, with two clasps, and throughout the war of 1914–18, when he was mentioned in dispatches in the *London Gazette* of May 25th, 1918, and December 30th, 1918, and received the D.S.O. in 1918, and also a bar to the D.S.O. He also held two Egyptian Orders—the 3rd Class of the Nile and the 4th Class of the Osmanieh. In 1913 he married Elsie Kate, eldest daughter of Matthew Barrass, Esq., of Killingworth, Northumberland, and had one son and one daughter.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on June 12th the following medical degrees were conferred:

M.D.—Charles Hill.
M.B., B.CHIR.—H. F. Anderson, D. N. Matthews, J. D. M. Jones.
M.B.—C. A. Dowding.
B.CHIR.—E. M. Darmady.

UNIVERSITY OF SHEFFIELD

At the meeting of the University Council held on June 12th Dr. A. E. Barnes was appointed to the Chair of Medicine in succession to Professor A. E. Nash.

The council received a notification from the Dental Board of the United Kingdom of grants of £4,000 towards the adaptation and extension of "Broom Bank" for the purposes of a dental hospital and school, and £1,000 towards the cost of equipment.

UNIVERSITY OF WALES

TUBERCULOUS DISEASES DIPLOMA

The following candidates have satisfied the examiners in the examination indicated: S. N. Ahmed, P. Arunachalam, S. M. Basu, L. R. Dongrey, E. F. Drum, J. Duffy, J. K. Feeney, M. A. Hai, D. V. G. Muthu, B. R. Patel, A. K. Shariff, M. P. Sinha.

UNIVERSITY OF DUBLIN

Dr. T. Henry Wilson has resigned the King's Professorship of Midwifery in the School of Physic of Trinity College. He will be succeeded in the chair by Dr. O'Donel Thornley Dodwell Browne, assistant gynaecologist to Sir Patrick Dun's Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council of the Royal College of Surgeons of England was held on June 11th, when the President, Sir Cuthbert Wallace, was in the chair.

Professor Einar Key of Stockholm was admitted an Honorary Fellow of the College, and the Honorary College Medal was presented to Dr. J. A. Murray.

The Council approved an address of congratulation to be presented at the forthcoming centenary celebrations of the University of London.

Examiners

The following examiners were elected for the ensuing year:

Fellowship.—Anatomy: P. N. Blake Odgers, H. H. Woollard, R. B. Green. *Physiology:* D. H. de Souza, Hamilton Hartridge, Samson Wright, John Mellanby.

Under the Conjoint Examining Board.—Elementary Biology: A. J. Grove, W. A. Cunnington, A. E. Ellis, S. R. B. Pask. *Anatomy:* E. P. Stibbe, Lambert C. Rogers, A. J. E. Cave, *Physiology:* A. St. G. J. McC. Huggett, Samson Wright. *Midwifery:* A. C. Palmer, Malcolm Donaldson, V. F. Lack, Trevor B. Davies. *Pathology:* James McIntosh, R. Davies-Colley, W. G. Barnard, B. W. Williams. *Diploma in Public Health:* Part I, C. C. Okell; Part II, James Fenton. *Diploma in Tropical Medicine and Hygiene:* Pathology and Tropical Hygiene, W. P. MacArthur; Tropical Medicine and Surgery, N. Hamilton Fairley. *Diploma in Ophthalmic Medicine and Surgery:* Part I, D. L. Davies, R. Affleck Greeves; Part II, R. Foster Moore. *Diploma in Psychological Medicine,* F. L. Golla. *Diploma in Laryngology and Otology:* Part I, E. M. Woodman, S. R. Scott; Part II, T. B. Layton. *Diploma in Medical Radiology:* Part I, J. M. Woodburn Morison; Part II, J. H. Douglas Webster. *Diploma in Anaesthetics:* H. E. G. Boyle. *Diploma in Child Health:* A. G. Maitland-Jones.

Dental Surgery (Surgical Section).—C. E. Shattock, C. P. G. Wakeley, P. H. Mitchiner, E. G. Slesinger, R. M. Vick, J. B. Hume. *In Medicine for the Licence in Dental Surgery:* R. A. Rowlands, A. H. Douthwaite, R. A. Hickling, E. Bulmer.

Awards and Appointments

It was reported that Sir Gilbert Blane Medals had been awarded to Surgeon Captain D. H. C. Given and Surgeon Commander M. B. Macleod.

The Hallett Prize was awarded to Kenneth William Starr, M.B.Syd., F.R.C.S., of the University of Sydney.

Mr. R. M. Vick was re-elected to the Court of Examiners.

Mr. W. Sampson Handley was reappointed as the representative of the College on the Court of Governors of the University of Sheffield.

It was reported that Dr. John Beattie had been appointed as the representative of the College on the British National Human Heredity Committee.

Diplomas

Diplomas of Fellowship were granted to the following candidates:

A. S. Wesson, D. C. Price, Jean M. Dollar, G. S. Seed, N. S. I. Narasimhan, A. G. Williams, E. R. G. Passe, R. H. Young, C. F. Evans, K. H. C. Hester, L. W. Lauste, A. L. Kenyon, O. J. Vaughan-Jackson, J. R. Blackburne, G. H. C. Ovens, W. M. Capper, A. Bowen-Davies, A. G. Cross, B. Schulenburg, R. Shackman, S. A. Mian, R. L. Benison, A. E. De Sa, J. D. Fergusson, F. I. Evans, S. Y. Fegetter, G. N. Sen, S. M. Thompson, J. G. Bonnin, T. M. J. D'Offay, F. G. Fenton, R. W. S. Fox, C. H. W. Lawes, Ruby G. Sharp, J. Sherne, W. H. M. Smith, K. W. Starr, J. C. Stewart, R. R. S. Strang, G. Townsley.

Diplomas of Membership were granted to Gordon Williams and Walter L. Isaac of St. Mary's Hospital.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following candidates:

R. A. Beaver, D. Blatchley, H. Canwarden, J. A. Carman, B. Coden, Phyllis F. L. Daplyn, C. J. M. Dawkins, M. M. Deane, Margaret L. A. Galbraith, H. Grant-Whyte, V. A. Goldman, G. G. Havers, M. W. P. Hudson, I. C. James, I. D. Jones, R. N. Jones, Agnes W. O'D. Kennedy, F. B. Mallinson, Ruth E. Mansfield, P. J. Nagle, P. M. Overton, C. B. Picken, R. A. C. Rice, A. D. Woolf, Tamsin Mary Wynter.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The House of Commons was in committee this week on the Finance Bill. Proposals affecting income tax were discussed. Debate also arose on foreign affairs.

The Midwives Bill was reported with amendments from a Standing Committee.

In the House of Lords the Education Bill and the Surrey County Council Bill were read a second time.

Midwives Bill

The Standing Committee of the House of Commons resumed, on June 11th, its consideration of the Midwives Bill. On Clause 5, which provides for compensation for midwives who cease, or are required to cease, practice after the Bill comes into operation, Sir KINGSLEY WOOD moved several amendments. The first was put down to meet representations made by the Midwives Institute that the clause as drafted might be unfair to midwives who practised during 1935 but were prevented by illness or domestic difficulties from giving notice between January 1st, 1936, and March 18th, 1936, of their intention to practise during the latter year. He said the amendments extended the provision of

the clause to midwives who during 1935 gave notice of intention to practise. The committee agreed to the amendment.

This was followed by a number of other amendments designed to deal with the question of compensation paid to a midwife by a local authority. The clause as drafted provided that compensation should be calculated by reference to her net emoluments during her period of practice in the area of the local authority up to a maximum of three years. The amendments would secure that the calculation should be based on the average net emoluments during the period up to three years in whatever area she might have worked, the compensation being paid by the authority to whom she surrendered her certificate. Provision was made by which the authority making the payment could obtain a proper proportion from the other authorities in whose areas she might be practising at the time she surrendered her certificate. The House concurred in these amendments.

Captain ELLISTON moved an amendment to remove from practice midwives who on account of advancing age or infirmity should no longer be allowed to practise. He said the danger was that to save compensation some local authorities might allow these women, as it were, to fade away. The Departmental Committee on Maternal Mortality had recommended an age limit of 60 for midwives under a national maternity scheme. Mr. SHAKESPEARE said the Ministry appreciated the object of the amendment, but thought that the Bill had dealt with it in another way. Local authorities must be trusted to operate the Bill in a reasonable spirit. Where an authority was not carrying out the spirit of the Act and not giving compensation the Ministry would have power to refuse a block grant. The amendment was withdrawn.

Period of Valuation

Captain ELLISTON then put forward amendments with the object of extending the period of valuation of the midwives' practice from three years to five years. He said it was important that these women should be able to average their gross income over five years because practices had declined through increased hospitalization of maternity cases, and in large areas unemployment had meant loss of fees for the midwife. Sir FRANCIS FREMANTLE said that the money resolution accompanying the Bill prevented the committee from increasing the compensation to midwives, and therefore all the committee could do was to ensure that the compensation was assessed over a larger period of years. Mr. SHAKESPEARE could remember no Act of Parliament which made in regard to compensation a provision similar to that proposed by Captain Elliston, and he doubted whether the proposal would be in the interest of the midwife. In response to protests from Labour members Sir KINGSLEY WOOD promised to look into the matter again, but pointed out that Captain Elliston's amendment only dealt with the midwives who were to be compulsorily retired. The amendment was negatived.

Right of Appeal

On an amendment by Mr. PETHERICK discussion arose on the right of appeal by the midwife. As the clause stood the midwife had the right of appeal only to the county court, and Mr. Petherick proposed there should be an alternative appeal to the Minister of Health. After discussion the amendment was withdrawn, and one moved by Mr. WM. LUNN, deleting the appeal to the county court and substituting one direct to the Minister, was inserted by 20 votes to 10.

Mr. KEELING moved the first of a series of amendments to give a local authority the opportunity of bringing a retired midwife back into active service. He said they must not shut out the possibility of a heavy call for nurses in case of war, and the midwifery service provided a reserve of nurses who could be replaced from the list of retired midwives. Sir FRANCIS FREMANTLE said that if an industry were started in an area the authority might be at its wits' end to deal with the matter, and midwives whose names had been removed from the roll might be extremely valuable. Sir KINGSLEY WOOD hoped that Sir Francis Fremantle would leave the matter where it was, because otherwise clauses would have to be inserted in the Bill to provide for compensation being repaid when the midwife was again restored to the register. The only midwives who had compulsorily to retire were the old and infirm, and others retired voluntarily. He suggested that Captain Elliston and Sir Francis Fremantle should confer with him further on the matter. The amendment was then withdrawn.

After further discussion the clause as amended was added to the Bill, and further consideration was adjourned till June 16th.

Discussion continued on June 16th on Clause 6—"Prohibition of unqualified persons acting as maternity nurses for gain." This clause forbade, under penalty, the receipt of remuneration for attendance in childbirth or during the ten days immediately thereafter, by any woman neither certified under the principal Act nor registered under the Nurses Registration Act, 1919. Mr. BATEY moved to omit "non-registered under the Nurses Registration Act, 1919." He said these words would debar trained women who had failed to register through illness or absence abroad. He also wished to know what the position under the clause would be of "home helps." Mr. SHAKESPEARE said the Ministry regarded the clause as vital. The "home help" would not be affected in her work in the house, but she had no qualification to work under the doctor. As for the women who had not registered, seventeen years had passed since registration had been instituted, and there had been opportunity to repair the omission.

Sir FRANCIS FREMANTLE said the clause retreated from the ideal that every woman in confinement should be attended by a trained midwife. The clause would allow a doctor preferring a nurse who had not that training to bring her in. That had to be allowed so long as the supply of midwives, particularly in outlying areas, would not suffice both for doctors' cases and those attended by midwives alone.

The amendment was negatived.

Mr. SHAKESPEARE moved to insert after "registered" the words "in the general part of the register of nurses required to be kept." He said the register of the State nurses was too wide, as it included mental nurses and fever nurses. The Ministry proposed to limit the doctor's choice to nurses on the general part of the register. A consequential amendment would leave the choice in institutions to the medical officer in charge. This would apply to all nursing homes inspected and registered by local authorities and to all institutions exempted from the Nursing Homes Registration Act. Women with obstetric certificates would, by a further amendment, be compelled to give notice in writing to the authority of the area.

The committee accepted these amendments, and Clause 6 was added to the Bill.

Instruction Courses

On Clause 7, which deals with the power of the Board to frame rules requiring attendance of midwives at courses of instruction, Mr. FRANKEL moved that before approving such rules the Minister should consult the London County Council and such associations of local authorities as appeared to him to be concerned. Mr. EDWARD DUNN pleaded for a wider training of midwives, which should include the new methods of anaesthesia by gas and oxygen.

Mr. SHAKESPEARE thought the purpose of the amendment would be achieved in the ordinary course of administration. He could give an assurance that the Minister would see to this.

The amendment was withdrawn, and the clause was added to the Bill.

On Clause 9 (Miscellaneous Amendments of Midwives Acts) Mr. DUNCAN moved that Section 5 of the principal Act (which provides for the payment of a fee not exceeding one guinea by women presenting themselves for examination or certificate) should be amended by inserting after the words "one guinea" the words "for such examination or certificate." He said that under the new rules of the Central Midwives Board there would be two examinations instead of one. The amendment was designed to allow the Central Midwives Board to charge less for each examination in the future. Mr. SHAKESPEARE accepted the amendment, which was agreed to.

On the Second Schedule Mr. SHAKESPEARE moved an amendment which, he said, was consequential on previous amendments accepted by the committee. Its purpose was to enable a midwife who was practising in two or three areas

to surrender her certificate to one local authority, which would pay her compensation, and then the other authorities would make proportionate contributions according to the amount of work which the midwife had done in their respective areas.

The amendment was agreed to, and the Schedule ordered to stand part of the Bill.

The committee stage was concluded, and the Bill as amended was ordered to be reported to the House.

Disposal of Trade Effluents

Lord GAINFORD, in the House of Lords on June 11th, moved the second reading of the Public Health (Drainage of Trade Premises) Bill. He said the purpose of the Bill was to improve the purity of the streams and rivers of this country, and its provisions were based upon the recommendations of a Joint Advisory Committee appointed in 1930 by the Ministry of Health. That committee recommended that the local sanitary authorities should take and dispose of trade effluents, and that traders should have the right to discharge these effluents into the sewers of the local sanitary authorities. There should be regulations for preliminary treatment of these effluents where necessary, and separate sewers should be provided. Local sanitary authorities should have right of access to traders' premises to inspect the effluents in regard to poisonous matters which might have to be taken into the sewers. It was further recommended that certain poisonous effluents should be excluded, that riparian interests should be protected, and that the Ministry of Health should have power to interfere where this was necessary in the interests of various authorities. These recommendations have practically all been accepted in the provisions of the Bill. Clause 1 dealt with the duty of local authorities to provide for the reception of trade effluents, and Clause 2 provided that traders should give adequate notice to the sanitary authority before their effluents were discharged into the latter's sewers. Other clauses dealt with safeguards and by-laws, and ensured that the Ministry of Health would have control and power of revision of any by-laws which were required by the local sanitary authority. Many bodies had been consulted on these proposals and had agreed to them, including the Society of Medical Officers of Health.

Lord GAGE said the Government was sympathetic to the Bill, and was glad to see the degree of agreement which had been reached on it. Lord GAINFORD acknowledged the general good will with which the Bill had been received, and the measure was thereupon read a second time and sent to a committee of the whole House.

Physique and Nutrition

On June 19th Mr. BALDWIN informed Mr. Emmott that approximately 35 per cent. of the applicants at recruiting offices last year in England, Scotland, and Wales were refused on the ground that they were not physically fit. With regard to the steps which the Government was taking to raise the present level of the physique of the nation, he referred to Circular 1445, issued by the Board of Education last January, from which it would be seen that, in addition to giving close attention to the various health services, such as the school medical service and the maternal and child welfare service, it was the Government's policy to promote the development of physical education for children of school age and for persons no longer attending school.

Viscountess ASTOR asked the Prime Minister to bear in mind that children who attended nursery schools were 5 lb. heavier and were taller than other pupils entering the elementary schools; that the latter were physically defective; and that the only way to put this right was through a proper system of open-air nursery schools.

Mr. SANDYS asked if the Prime Minister did not recognize that the figures showed a very disappointing position.

Mr. BALDWIN: I think there can be no dispute about that.

Mr. JOHNSTON asked if, in addition to the 35 per cent. rejected as physically unfit, another 30 per cent. were rejected later as medically unfit. As there was agreement on all sides of the House that something ought to be done to improve the nutrition of the people, would the Prime Minister provide an opportunity for discussing the matter?

Mr. BALDWIN said that if the question was raised it would be discussed. This was a matter which the Government now had in hand.

Mr. SHAKESPEARE, replying on June 19th to Mr. Lennox-Boyd, said that the facts, quantitative and qualitative, in relation to the diet of the people had been referred to the Advisory Committee on Nutrition. In regard to the facts, the committee had reported that the available data were insufficient, and had recommended the collection of further particulars. The committee had, however, recently laid stress on the importance of milk as a food. Mr. Shakespeare also told Mr. Cartland, on June 19th, that £300 was provisionally authorized for the expenses of the Advisory Committee on Nutrition in the financial year 1935-6, but the actual expenses were about £160.

Replying to Mr. Sandys on June 19th, Mr. SHAKESPEARE said that the present daily consumption of liquid milk in this country was estimated at slightly less than half a pint a head. The Government accepted the views expressed by the Advisory Committee on Nutrition as to the high value of milk as a food. Schemes for the provision of milk, either free or at cheap rates, to mothers and children were now in operation. The Government would give consideration to the further development of these schemes, but this must await the general review of milk policy which would take place when the report of the Milk Reorganization Commission was available.

Mr. T. WILLIAMS asked if the Minister was aware that in the Cardiff experiment it was proved that 26 per cent. of working-class children were not getting liquid milk at all.

Mr. SHAKESPEARE said he could not express an opinion. Under the policy of the Government the drinking of milk by school children had increased enormously.

Infectious Diseases Incidence and Accommodation in Aberdeen

On June 16th Sir GODFREY COLLINS, replying to Sir Robert Smith, circulated the following tabular statement showing the number of cases of scarlet fever notified from the districts and burghs of the county of Aberdeen (excluding the city of Aberdeen), the number treated in the county fever hospitals, and the average time patients were retained in hospital during each year:

Year	Number of Notifications	Number Removed to County Fever Hospitals	Average Number of Days of Treatment
1925	540	500	38
1926	700	635	41
1927	619	556	42
1928	609	562	41
1929	360	324	43
1930	281	265	35
1931	223	210	40
1932	317	286	41
1933	660	596	40
1934	1,491	1,176	41
1935	1,412	1,148	43

In addition, the following cases were accommodated in the Aberdeen City Hospital: 1932, 12; 1933, 17; 1934, 126; 1935, 109.

On June 16th Sir GODFREY COLLINS, replying to Sir Robert Smith, said that the number of infectious diseases hospitals in the county of Aberdeen (excluding the city of Aberdeen) in 1930 was twelve, and the number of beds available for infectious fever cases (exclusive of tuberculosis) 155. In 1935 the corresponding numbers were five and eighty. Under arrangements now in force between the county and the city of Aberdeen the hospitals of the latter were available for county patients.

Accommodation in Scottish Counties

On June 16th Sir GODFREY COLLINS also informed Sir Robert Smith that in 1930 there were available in infectious diseases hospitals in the counties of Scotland, including small burghs, approximately 2,850 beds for the treatment of patients suffering from infectious diseases. In 1935 there were approximately 3,000 beds.

Health of Prison Population in Scotland

Sir GODFREY COLLINS, replying to Mr. Johnston on June 16th, said that the approximate wholesale cost of the ingredients of the items in the dietary rates per person per day in Scottish prisons in 1935 was as follows: rate I, 4¾d.; rate II, 5d.; rate III, 5¼d.; rate IV, 6¾d.; rate V, 8½d. The costs would, of course, be higher if the ingredients had to be purchased at retail prices. In view of these figures he was unable to accept the suggestion made in the question—namely, that the law-abiding working classes should be at least as well fed as the inmates of prisons.

Mr. JOHNSTON asked if the right honourable gentleman had not been assured by his medical advisers in charge of these prisons that the prison population were better fed after a period in prison than they were when they entered prison.

Sir G. COLLINS said that not only was the dietary better, but the regular life they led and the work they did had some bearing on this point.

Driving Tests.—Mr. HORE-BELISHA stated, on June 10th, that up to and including May 30th 316,886 persons had been examined in the driving test, of whom 57,594 failed to satisfy the examiners. From May 6th, 1935, since when separate records for men and women had been kept, to May 30th, 1936, the figures are: men examined, 234,827—failed, 41,083 (17.4 per cent.); women examined, 55,248—failed, 14,094 (25.5 per cent.).

Local Authorities' Reports on Overcrowding.—Sir KINGSLEY WOOD stated, on June 11th, that up to June 10th reports had been received under the Housing Act, 1935, from 1,272 local authorities out of a total of 1,536. These reports showed that 7,893,399 houses were inspected and 296,738 were found to be overcrowded—an average of 3.8 per cent. The reports included seventy-four county boroughs, in which 2,588,020 houses were inspected and 99,581 were found to be unfit—an average of 3.8 per cent. They also included most of the large centres of population. Sir Kingsley thought the results were not likely to be substantially affected when outstanding reports which he had urged local authorities to submit forthwith were received.

Demonstrations on Anaesthetized Animals at a London Hospital.—Mr. GROVES, on June 12th, asserted that experiments had been recently performed without a licence on dogs at the Central London Throat, Nose, and Ear Hospital. Mr. GEOFFREY LLOYD said that the inspector under the Act had made inquiries and reported that the animals when under complete anaesthesia were employed for the purpose of instructing medical practitioners in the use of the bronchoscope and otoscope. This procedure was not calculated to cause pain, and did not come under the Cruelty to Animals Act, 1876. The Home Secretary did not propose to take action.

Report on Automatic Gas Detectors.—Captain CROOKSHANK, on June 16th, informed Mr. T. Williams that he had discussed automatic gas detectors with representatives of the Mining Association, and asked for a statement of the further action the mine owners were prepared to take in each district. The terms of this report would be settled at a meeting to be held on June 17th, and he hoped to have it in his hands at an early date thereafter.

Notes in Brief

Sir Kingsley Wood states that well over 200 non-county borough and district councils are maternity and child welfare authorities.

On June 16th Sir Godfrey Collins, replying to Mr. Guy, who asked what action he proposed to take on the report of the Committee on the Training of Nurses, said consultation with the General Nursing Council was proceeding. Representations from various interested bodies had also to be considered.

The Committee on Scottish Health Services will probably submit its report by the end of this month. Publication will follow immediately.

The Government proposes to introduce a Consolidating and Amending Factories Bill next session.

Medical News

The second annual exhibition of the Medical Art Society, of which Sir Leonard Hill, F.R.S., is president, will be held at the House of the Royal Society of Medicine, 1, Wimpole Street, W., from July 2nd to 14th, except Saturdays, from 2 p.m. to 6 p.m.

Professor F. S. Kipping will deliver the Bakerian Lecture, on organic derivatives of silicon, before the Royal Society at Burlington House on Thursday, June 25th, at 4.30 p.m.

The ninety-fifth annual meeting of the Royal Medico-Psychological Association will be held at Lees Cliff Hall, Folkestone, on Wednesday, Thursday, and Friday, July 1st, 2nd, and 3rd. On July 1st the in-coming president, Dr. Michael Abdy Collins, will deliver his presidential address on "The Law and the Present Position of Psychiatry," and at 7 for 7.30 p.m. the annual dinner of the association will be held at the Royal Pavilion Hotel. July 2nd will be devoted to various discussions, and in the evening there will be a reception and dance, at the invitation of the mayor and corporation. Further discussions will be held before lunch on July 3rd, and the meeting will close with social functions that afternoon and on the morning of Saturday, July 4th.

The annual general meeting of the Medico-Legal Society, to be held at 26, Portland Place, W., on Thursday, June 25th, at 8.15 p.m., will be followed by an ordinary meeting, at which Mr. J. B. Montagu will read a paper on "The Development in Criminal Law and Penology since 1910."

A meeting of the Medical Section of the British Psychological Society will be held at 11, Chandos Street, W., on Wednesday, June 24th, at 8.30 p.m., when Dr. Rowland Hill will read a paper on "Somnifaine Narcosis." A discussion will follow.

A joint meeting of the Home Counties Branch and the Fever Hospital Medical Services Group of the Society of Medical Officers of Health will be held at 1, Thornhaugh Street, Russell Square, W.C., on Friday, June 26th, at 4.30 p.m., when Dr. A. Forrest will open a discussion on "Some Aspects of Scarlet Fever and Current Methods of Control."

A course of three lectures on gynaecology and midwifery in the Tropics will be given by Mr. V. B. Green-Armytage in the department of obstetrics and gynaecology at the British Post-Graduate Medical School, Ducane Road, W., on July 9th, 13th, and 16th, at 3.30 p.m. The lectures are for regular students of the School, but a limited number of tickets are available, without fee, to other medical practitioners. Applications for these should be addressed to the dean of the School.

The council and staff of the London (Royal Free Hospital) School of Medicine for Women are giving a luncheon party on Thursday, July 2nd, to celebrate the centenary of the University of London. The guests of honour will be the Earl of Athlone, Chancellor of the University, the Right Hon. Oliver Stanley, M.P., President of the Board of Education, Sir Alan Anderson, M.P., and Lady Barrett, President of the Medical School.

The Fellowship of Medicine announces the following courses: General surgery at Prince of Wales's General Hospital, June 27th and 28th; children's diseases at Princess Elizabeth of York Hospital, July 4th and 5th; heart and lung diseases at Victoria Park Hospital, July 11th and 12th; proctology at St. Mark's Hospital, July 6th to July 11th; dermatology at Blackfriars Skin Hospital, July 13th to 25th; urology at All Saints Hospital, July 13th to August 1st. On June 29th, at 4.45 p.m., at Royal Westminster Ophthalmic Hospital, a demonstration of fundi of medical interest will be given, and at the same place on July 1st, at 5 p.m., there will be a lecture on some points in medical ophthalmology. On July 7th, at 8.30 p.m., at West End Hospital for Nervous Diseases, there will be a demonstration on fundus oculi.

An international post-graduate course on therapeutics will be held at Freiburg i. Br. from June 28th to July 18th. The fee for foreigners is RM. 50 and for Germans RM. 30. Further information can be obtained from Professor C. Noeggerath, Universitätskinderklinik, Freiburg i. Br.

Sir William Bragg, O.M., President of the Royal Society, will distribute the prizes at the London Hospital Medical College on Friday, June 26th, at 3 p.m.

The issue of *Paris Médical* for June 6th is devoted to infectious diseases.

The King has granted permission to Dr. Graham Aspland, physician to H.B.M. Embassy, Peking, to wear the Cross of the Legion of Honour conferred upon him by the President of France. Dr. Aspland in 1914 organized a hospital for the French wounded from the Argonne, in France, and has for many years acted as Surgeon to the French Hospital in Peking. During the great war he held the rank of Lieutenant-Colonel in the R.A.M.C.

The British Red Cross Society informs us that nearly 14,000 of its detachment members are now qualified in air raid precautions. This subject has been included in the regular training of all the Society's voluntary aid detachments.

On the occasion of the International Congress of Comparative Pathology recently held at Athens a statue of Hippocrates, the work of the sculptor Georges Dimitriadis, was unveiled in front of the medical faculty of Athens.

It is announced that there will be an international congress on hepatic insufficiency, under the presidency of Professor Loeper, at Vichy from September 16th to 18th, 1937. Two sections of discussions will be arranged, the one dealing with medicine and biology, the other with the therapeutic side and including medical, surgical, and hydrological methods. This congress is in succession to the Conference on Biliary Lithiasis in 1932, and is under the auspices of *La Presse Médicale Française*, 23 Rue du Cherche-Midi, Paris, 6e. It will be preceded by the International Congress on Gastro-enterology, which will be held in Paris on September 13th to 15th. To the second of these congresses Dr. Hamilton Fairley of London will make a contribution on the stages of hepatic insufficiency in malaria. The secretary of this congress is Dr. J. Aimard, Boulevard des Capucines 24, Paris IX.

The Secretary of State for the Home Department, the Minister of Health, and the Secretary of State for Scotland have appointed Dr. J. F. E. Prideaux as Assistant Director of Medical Services, Ministry of Pensions, to be a member of the Inter-Departmental Committee appointed in April, 1936, to inquire into the arrangements made in this country for the restoration of the working capacity of persons injured by accidents (see *British Medical Journal*, May 2nd, 1936, p. 894).

On the occasion of the recent celebration of the 350th anniversary of the Karl Franz University of Graz, Hofrat Dr. Anton Eiselsberg and Geheimrat Hans Horst Meyer were created doctors *honoris causa*.

The Berlin Society for the Study of Children's Disease was founded in November last at the Berlin University Children's Clinic of the Charité Hospital, under the presidency of Professor Bessau. At the inaugural meeting Professor Czerny was elected an honorary member.

The Imperial Academy of Medicine of Japan has presented its highest distinction (the Emperor's prize) to Drs. Sasaki and Yoshida for their researches in the experimental production of cancer of the liver by ingestion of ortho-amido-azotoluol.

The French Academy of Medicine has appointed a commission to investigate the conditions underlying the alleged decline in breast-feeding in France.

A large new hospital for infectious diseases has recently been opened in Rome.

The physicians, surgeons, radiologists, and biologists of Marseilles have formed a new society, devoted to gastro-enterology, under the presidency of Professor Monges.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

The **TELEGRAPHIC ADDRESSES** are

EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*

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The address of the B.M.A. Scottish Office is 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh), and of the Office of the Irish Free State Medical Union (I.M.A. and B.M.A.), 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin).

QUERIES AND ANSWERS

Palliative for Hay Fever

"M.B., CH.B." writes: Will someone kindly recommend a palliative for severe hay fever? I was too sensitive to grass pollen to take even five units of pollaccine. The usual palliatives have been tried—ephedrine by mouth, endrine locally, etc.—but with no relief. The most troublesome symptoms are rhinorrhoea and itching of the conjunctiva.

Painful Elbow

"S. S. G." writes: I shall be glad of advice in the following case. X, aged 54, has had a painful elbow, pain particularly between the coronoid and olecranon over the ulnar nerve. There is no swelling or evidence of rheumatism, and no history of injury. The patient can carry out normal movements, but cannot play golf or use the arm in any strenuous manner. Heat appears to suit and soothe best, but any form of massage or electricity irritates and causes pain at once. I have heard of several similar cases which have been equally resistant to treatment.

Urticaria after Aspiration of Pleural Effusion

"T. K." writes: The report by Dr. Fergus Paterson in your issue of May 16th, dealing with a case of giant urticaria following upon aspiration of a pleural effusion, is apt to suggest the possibility of a pulmonary hydatid, and I would be very interested to know the results of radiological and serological investigation, together with those of examination of a centrifugalized deposit of the fluid (unstained) and guinea-pig innoculation. Any further notes upon the case would be of great interest.

The Sympathetic Ring

Dr. E. MARCUS LIDDLE (Crewe) writes: With reference to Dr. J. P. Jones's query (May 23rd) regarding the "sympathetic ring," a similar case came under my notice this week. In this woman's case the 22-carat gold wedding ring has turned the colour of platinum on four separate occasions in the past twelve months, but recovers its normal colour while still on the patient's hand, usually within three or four hours. This woman also suffers from nervous headaches, and dates the first change of colour from a severe thunderstorm, during which she was very frightened. There is no evidence of contamination with chemicals of any kind.

⁂ One effect of publishing Dr. Jones's note has been an addition to the weight of our post-basket during recent weeks. His inquiry about the wedding rings that changed colour was quoted in the *News of the World*, with the result that readers of that newspaper from all parts of the country, and most of them in humble walks of life, wrote to match their own experience with that of Dr. Jones's patient. About seventy of these artless letters have been forwarded to us. Most of the writers are married women,

or men writing on behalf of their wives; nearly all speak of "nerves," neuralgia, or rheumatism. It is well known that gold coins, rings, etc., when brought in contact with mercury immediately change colour, by deposition of a film of Hg. This wears off gradually by friction. We gather that in some—perhaps many—of the instances recorded of a 22-carat gold ring changing to a "platinum" colour the explanation is contact with mercury—mercurial ointment or lotion, mercurial disinfectant soap, or mercury from a broken thermometer.

Dipsomania

"RETIRED PRACTITIONER" writes in reply to "J. D." (*Journal*, June 13th, p. 1238): I advise that the wife, parent, or other person of trust be given a one-ounce bottle of vin. ipecac. I would not suggest any routine daily "allowance." The use of vin. ipecac. is an emergency measure intended to meet some unusual behaviour proposed by the patient—for example, when he suddenly telephones for a taxi, or proposes to go out undressed, or to perpetrate an act of violence on himself or others. It is unlikely that more than one such emergency will arise within twenty-four hours, but if it did there is no reason why the dose of 1 drachm should not be repeated within twenty-four hours. Vomiting follows at once, and most of the vin. ipecac. is returned. It is assumed that the medical attendant will maintain general supervision and be consulted frequently.

Income Tax

Cash Basis: Change in Partnership

"BISHOP" sold his half share in a partnership—assessed on the cash basis—to C. What is the position as regards his half share of the receipts from work done before the sale of his share? Such receipts are shared between him and his former partner.

*** So far as "Bishop" is concerned such receipts are not liable to assessment in his hands. They represent the in-gathering of income earned when he was in partnership with A., and the amounts of past assessments, though calculated on the basis of cash receipts, must over the period be taken as equivalent to payment on the earnings basis. The position now is that the new firm of A. and C. have two alternatives: either to start their returns on the earnings basis or to adhere to the cash basis, but in the latter case they must include (as a measure of the gross earnings of the practice) the whole of the cash receipts from past work, including the portion handed on to our correspondent.

Donations

"E. S." explains that during the course of the year he had to give donations to charitable and religious institutions by virtue of his position as a medical practitioner in the town. Are they allowable as professional expenses?

*** The statute requires the expense to be incurred "wholly and exclusively . . . for the purposes . . . of the profession," and such subscriptions as those suggested are opposed by the Revenue authorities as not falling within that description. The matter is open to dispute, but there is little help from judicial decisions—the amounts involved are, of course, usually small—though there are dicta which suggest that an element of remoteness in the intention would render the subscription not allowable. Social status brings moral obligation of this sort, apart from the nature of the income. We have considerable sympathy with "E. S.," but cannot advise him to carry his point to appeal.

LETTERS, NOTES, ETC.

Longevity

DR. GEORGE B. BATTEN (Dulwich) writes: My rather exceptional personal experience among my patients during the last ten years may be of interest. Since September, 1927, eighty-five of my patients, many of whom I attended for years, have died, their ages ranging from 24 to 97, the average age at death of each patient being well over 75 years, this including all patients who have died in this ten-year period. Roughly analysed, the chief causes of death are as follows: *circulatory*, 37 cases, 13 of which were with weak hearts or circulatory degeneration, 24 with hyperpiesis, apoplexy, thrombosis, or embolism; *pulmonary*, 25 cases, which include phthisis 3, asthma 3, acute inflammations 5; *cancer*, 14 cases, none of the breast, but chiefly of digestive and urinary tracts; *blood and general diseases*, 3 cases, including diabetes 2, anaemia 1; *digestive*, 10 cases; *kidneys and genito-urinary*, 6 cases, including dropsy, prostates; *influenza*, 4 cases without serious complications; *rheumatism of various kinds*, 6 cases; *Graves's disease*, 2 cases; *erysipelas*, 1 case (in a man of 95); *simple senile debility*, 4 cases; *extreme obesity*, 2 cases. These give 114 chief causes in eighty-five deaths, but of course there was considerable overlapping, as of diabetes and prostatic disease, cancer, rheumatism, bronchitis, etc. The infrequency of phthisis in these aged patients, and in all patients in this neighbourhood, in my experience, is remarkable. These are, of course, figures of an elderly practitioner, for I shall have been in partnerships in Dulwich for over fifty years on July 1st—if I exceed the average life of these eighty-five patients.

Treatment of Boils

Dr. J. J. O'KEEFE (Fanning Island, Mid-Pacific) writes: A recent letter in your pages on the treatment of boils and carbuncles prompts me to give details of a technique which I have developed for the treatment of staphylococcal infections of the skin. If seen in a very early stage the hair of the infected follicle is extracted and the follicle is gently bored with a wooden toothpick dipped in pure carbolic acid—a practically painless procedure. But if, as is usually the case, the condition when first seen is too far advanced for abortive treatment, then the bleb of pus in the centre of the indurated area is evacuated and a cotton-wool swab saturated with ether is applied. While the patient holds this in position I cut a one-inch square of adhesive strapping. A piece of lint not more than one-quarter of an inch square is now cut. The swab is removed from the furuncle. The tiny square of lint is dipped in ether and placed upon the adhesive surface of the small square of plaster, which is now quickly applied to the open pustule. Ether being an effective solvent of the adhesive, care is taken to avoid pressure over the centre of the plaster, and strips of plaster one-eighth of an inch wide applied to the edges of the square act as seals. This dressing is neither unsightly nor inconvenient; the pain is remarkably minimized; the patient remains at work; and at the fourth daily dressing the core will, in most cases, be found on the little square of lint. In carbuncles the treatment is the same but naturally the dressing is larger, and the slough does not come away until about the eighth day, but pain is practically non-existent after the fourth day. The occlusive treatment *per se* is merely a revival of the "boil plaster" which several drug houses have had on the market for many years, and which, in more than one personal experience, failed to give me much relief. The method of treatment above described has, however, given me dramatic results in a type of infection which, like the common cold, has hitherto been used to taunt us with inefficacy in minor maladies.

Medical Golf

The summer meeting of the Medical Golfing Society was held at Walton Heath on Thursday, June 11th. Some seventy members competed over a course which was in perfect condition, while the weather was ideal. Several competitions took place, and the following are the results. *Lancet* Cup: A. H. Knowles (1 down). Henry Morris Cup: A. G. Palmer (4 up). Gordon Watson Cup for Veterans: G. C. Anderson (all square). Class I: first, J. McGrath; second, J. M. Healey. Class II: first, A. G. Palmer; second, H. W. L. Allott. Foursome: W. Rowley Bristowe and H. Lamplough (4 up).

A demonstration-lecture on summer salads will be given by Mrs. Jenny Fliess at the Soho School of Cookery, 20, Soho Square, W.1, on Wednesday, June 24th, at 8 p.m. Tickets (2s. 6d.) from the Food Education Society, 29, Gordon Square, W.C.1.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 68, and 69 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 66 and 67.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 339.